EFFECTIVENESS OF INFORMATION EDUCATION COMMUNICATION PACKAGE ON KNOWLEDGE REGARDING RENAL REHABILITATION AMONG PATIENTS UNDERGOING HAEMODIALYSIS

Dissertation Submitted To

THE TAMILNADU DR.M.G.R. MEDICAL UNIVERSITY

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IN PARTIAL FULFILMENT OF REQUIREMENT FOR THE AWARD OF

DEGREE OF

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TABLE OF CONTENTS

LIST OF TABLE

LIST OF FIGURES

LIST OF APPENDICES

ABSTRACT

End Stage Renal Disease (ESRD) patients undergoing dialysis has many physical and emotional changes related to their disease and its treatments. They have to make many adjustments in their lives. To optimize health and improve quality of life, rehabilitation of renal patients is a necessity. Renal Rehabilitation education is the ongoing process of facilitating the knowledge, skill and the ability necessary for their independent, productive and high quality of life.

A study was conducted to determine the effectiveness of IEC package on knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis in dialysis unit of Apollo Hospitals at Chennai, 2011-2012. The hypothesis formulated was that there was no significant relationship between the IEC package and level of knowledge regarding Renal Rehabilitation among patient undergoing Haemodialysis.

The research design used in this study was pre experimental one group pre test post test design. It was carried out with 30 samples those who fulfilled the inclusive criteria. The purposive sampling technique was used to select the samples. An interview schedule was conducted to the patients undergoing Haemodialysis to assess the pre test level of knowledge regarding Renal Rehabilitation. IEC package regarding Renal Rehabilitation was given to the patients undergoing Haemodialysis for the duration of 20 to 30 minutes. The post test was conducted after one week by using the same tool.

Analysis revealed that the mean knowledge score was markedly increased from 23.43 in the pre test to 38.80 in the post test with gradual decrease in standard deviation from 6.02 in the pre test to 5.63 in the post test. The difference between pre test and post test mean knowledge score regarding Renal Rehabilitation was large. The calculated student's dependent 't' test value of 14.01 was highly significant at $p<0.001$ level. It indicates the effectiveness of IEC package on knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis. So the null hypothesis was rejected and research hypothesis was accepted for this study.

CHAPTER-I

INTRODUCTION

"Health is Wealth"

According to World Health Organization in 1948, Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. Kidneys are the master chemists of our body. Kidneys supervise the condition of the blood, segregating damaging substances from valuable ones, proceeding not merely as waste disposal units but like complicated sieves too that salvage valuable substances that slip through the holes. The kidneys preserve the inner environment necessary for life.

Kidneys do essential functions that have an effect on all parts of the body and are involved in complex operations that keep the rest of the body in equilibrium. When the kidneys are injured by disease, other organs are also involved. Kidney problems could vary from a slight urinary tract infection to progressive kidney failure. Kidney health information is essential to find if we care for our kidneys. It's because kidneys are such vital organs that keep the body running well. Healthy kidneys are very important for the entire body.

The most recent report of the United States Renal Data System estimates that nearly one-half million patients in the United States were treated for ESRD in the year 2004 and by 2010 this figure is expected to increase by approximately 40%. The elderly are a growing segment of the population and at increased risk for renal disease. Additionally, African-Americans with pre-existing hypertension or diabetes and Chronic Kidney Disease (CKD) are also at much higher risk for developing End Stage Renal Disease.

The exact number of patients with chronic renal failure requiring Renal Replacement Therapy (RRT) in the developing world is not known. Unlike the developed world, most developing countries lack renal registries. Therefore, the exact

incidence and prevalence of chronic renal failure in the population, its burden on the health care system and the outcome of these patients are not known

The relative prevalence of various primary renal diseases among patients with ESRD is highly variable in different countries. Chronic glomerulonephritis, diabetic nephropathy, chronic interstitial nephritis, and hypertensive nephrosclerosis are the leading causes of ESRD in India. In patients between 40 and 60 years old, diabetic nephropathy is the most common cause of ESRD. Only 10% to 15% of patients are under went biopsy, as the vast majority of patients with chronic renal failure have bilaterally contracted kidneys by the time they present to a nephrologists. Treatment facilities for end-stage renal disease are not available uniformly to all sections of society in most of the developing world.

The mean age of ESRD patients requiring dialysis in most developing countries is much lower 32 to 42 years, than that in the developed world, 60 to 63 years. Among the reasons for this difference are the delay in detecting renal disease and the failure to institute controlling and preventive measures in patients with progressive renal failure, both of which result in faster deterioration of renal function and progression to ESRD. About 61% of patients with chronic renal failure present with ESRD to specialists. Late referrals lead to a faster progression of co morbid conditions, increase the cost of therapy and worsen overall patient survival.

Chronic diseases have become a major cause of global morbidity and mortality even in developing countries. The burden of CKD in India cannot be assessed accurately. The approximate prevalence of CKD is 800 per million populations and the incidence of ESRD is 150-200 per million populations. The most common cause of CKD in population based studies is diabetic nephropathy. Nearly 18,000-20,000 patients in India get RRT.

According to the chief nephrologist Dr. M.K. Mani of Apollo Hospitals, Chennai stated that the primary goal should be the prevention of ESRD. Aggressive treatment for hypertension is likely to reduce the incidence of ESRD. Screening for diabetes and hypertension may be important in reducing ESRD rates.

Renal Rehabilitation is defined broadly in terms of optimal functioning for individual patients and restoration to productive activities not simply employment. To foster Renal Rehabilitation and guide program development, the Life Options Rehabilitation Advisory Council identified that the five core principles of Renal Rehabilitation are called the “5 E's” which includes Encouragement, Education, Exercise, Employment and Evaluation.

NEED FOR THE STUDY

According to Dr.Mani.M.K, (2008) conducted a study in India that revealed that the principle causes of ESRD are diabetic nephropathy, hypertensive nephropathy, chronic pyelonephritis, autosomal polycystic kidney disease and obstructive uropathy. Over 50 percent of these diseases possibly could be prevented if an effort was made. Millions of Indians suffer from diabetes and hypertension and are unaware of their illness. Even if they know they have one of these diseases, there are often few symptoms and they therefore do not take treatment.

According to Dr.Krishnasami,(2008) said that an ounce of prevention is worth a pound of cure rings especially true in developing countries.The main focus on ESRD should be more epidemiological studies to determine the most common etiologies like diabetes, hypertension, cardiovascular disease and obesity said by Ben Franklin. He also said that developing countries really need to focus on epidemiological studies and look at the resources that are available and work toward trying to get some screening and surveillance at their level. Improved screening is a financial issue too, and we have to take it slowly with the resources.

According to World Kidney Day Chennai, (2009) more than 1.5 million people currently are undergoing RRT and the number is forecasted to double within the next 10 years. The cumulative global cost for dialysis and transplantation over the next decade is predicted to exceed 1 trillion.

According to Goldberg, AP, Geltman, (2002) done a research shown that early education about renal disease, its treatments, and the potential to live long and

productively can aid in overall adjustment and decision making for people on dialysis. More specifically, learning about topics including kidney failure, treatment choices, medications and the renal diet can help dialysis patients maintain a sense of control, a factor linked to improved adherence and life satisfaction. With education and support, people on dialysis can begin to make careful, informed decisions about their treatment. Self management can help patients regain control over certain aspects of their lives and their health a step that can directly influence emotional well being and other important outcomes.

According to Painter, P. et al., (2002) done a study concluded that exercise can enhance the potential for physical activity and improved quality of life. Exercise has been shown to reduce fatigue, alleviate depression, improve social adjustment, and help patients feel more independent and in control of their lives and their health. Encouragement especially from families and dialysis staffs can increase patient's autonomy, control and participation in treatment. Studies showed that the patients received support from their families and dialysis staff was a major factor in promoting employment. Further, a number of studies show that patients who are encouraged to learn about their treatment have better outcomes and improved quality of life.

According to Given, B, et al., (2003) employment and involvement in school have also been shown to promote greater acceptance of kidney failure and accepting and adjusting to illness positively influences quality of life. In addition, employment can increase self esteem and provide a source of identity and a sense of contributing to society.

Renal Rehabilitation education is the ongoing process of facilitating the knowledge, skill and ability necessary for ESRD patients. This process incorporates the needs, goals and life experiences of the person with ESRD and is guided by evidence based standards. The overall objectives of Renal Rehabilitation education are to support informed decision making behaviours, problem solving and active collaboration with the health care team and to improve clinical outcomes, health status and quality of life.

The nurse's responsibility does not stop, when the patient is given good bed side care. The purpose of the information education communication package on knowledge regarding Renal Rehabilitation is not to cure the disease, but it is a positive predictor of physical and mental health for people on Haemodialysis. Informed patients have reported fewer symptoms as well as more confidence in their ability to manage the symptoms. Supportive social environments have shown to have a positive impact on adjustment for people with renal disease.

The researcher found that many patients come for Haemodialysis in Apollo Hospital with ESRD. These patients do not have an adequate knowledge regarding Renal Rehabilitation and developed many imbalance in health status, inadequate overall adjustment and decision making. More specifically, learning about core principles of **Renal Rehabilitation are called "4E's" which includes Education, Exercise, Encouragement and Employment** can help dialysis patients maintain a sense of control, a factor linked to improved adherence and life satisfaction. So the researcher wanted to choose an IEC package method to expose the patients undergoing Haemodialysis about the aspects of Renal Rehabilitation and to encourage the behavioral lifestyle modifications.

IEC package will create more involvement of the patients and the duration of retaining the content in the mind will be more when compared with other methods. A change in behavior may result from increased knowledge or from an improvement in skill acquired during the teaching learning process. A change in behaviour may follow a change in attitude or change in self expectations or other imposed.

STATEMENT OF THE PROBLEM

A study to assess the effectiveness of information education communication package on knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis in dialysis unit of Apollo Hospitals at Chennai.

OBJECTIVES

1. To assess the pre test level of knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis.

2. To assess the post test level of knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis.

3. To determine the effectiveness of information education communication package on knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis.

4. To associate the pre test and post test level of knowledge regarding Renal Rehabilitation with the selected demographic variables of patients undergoing Haemodialysis.

OPERATIONAL DEFINITIONS

Effectiveness: Refers to the positive outcome of information education communication package on knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis.

IEC Package: Refers to a planned, systematically developed information designed to teach patients undergoing Haemodialysis regarding Renal Rehabilitation by using audio visual aids like video clips, power point presentation, hand out and booklet.

Knowledge: Refers to the gained information regarding Renal Rehabilitation among patients undergoing Haemodialysis.

Renal Rehabilitation: Refers to the needed information about End Stage Renal Disease that includes “4E’s”Education, Exercise, Encouragement and Employment.

Patient undergoing Haemodialysis: Refers to an individual who is diagnosed with End stage renal disease and undergoing artificial removal of waste products from the blood.

HYPOTHESIS

There is no significant relationship between the IEC package and level of knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis.

DELIMITATIONS

- The sample size was limited to 30.
- The study was delimited to patients with ESRD.

CHAPTER-II

REVIEW OF LITERATURE

The review of literature is an essential aspect of the scientific research It is a systematic identification, location, scrutiny and summary of written material that containing information about the problem under study. The researcher gained insight in selected problem from an extensive research review.

This chapter was designed to include the reviews of related literature and the conceptual framework adopted for the study.

PART I: REVIEW OF RELATED LITERATURE

The incidence of End Stage Renal Disease was anticipated to grow at a rapid rate pressured by increased rates of diabetes and changing racial distributions. This burgeoning population will push the demand for more physical therapy services. Currently, over 406,000 patients with ESRD receive dialysis treatment in the United States. The disease was more prevalent in the minority and lower socioeconomic populations.. Dialysis center based rehabilitation and fitness programs may help to keep the patients healthier and provide a conduit to outpatient physical therapy services.

This chapter is organized systematically and classified in the following manner.

- Literature related to education regarding Renal Rehabilitation.
- Literature related to exercise regarding Renal Rehabilitation.
- Literature related to encouragement regarding Renal Rehabilitation.
- Literature related to employment regarding Renal Rehabilitation.

PART II: CONCEPTUAL FRAMEWORK

PART I

REVIEW OF RELATED LITERATURE

The attention being paid globally to CKD is attributable to five factors namely the rapid increase in its prevalence, the enormous cost of treatment, recent data indicating that overt disease is the tip of an iceberg of covert disease, an appreciation of its major role in increasing the risk of cardiovascular disease and the discovery of effective measures to prevent its progression. These factors render CKD an important focus of healthcare planning even in the developed world, but the problems they delineate in the developing world are far more challenging.

There are no concrete data on the true incidence and prevalence of chronic renal failure in the developing world. Delayed diagnosis and failure of institution of measures to slow progression of renal failure result in a predominantly young population with ESRD. Some 85% of the world's population lives in low income or middle income countries, where the clinical, epidemiological and socioeconomic effects of the disease are expected to be the greatest.

The majority of patients with chronic renal insufficiency (CRI) have only limited knowledge of their condition. Various studies of the benefits of patient education programmes have shown that educated patients have a reduced incidence of emergency dialysis compared with control patients. Additionally, more educated patients are able to start dialysis as an outpatient rather than in hospital. An education programme also allowed a greater number of blue collar workers to remain employed after starting dialysis.

The US National Pre End Stage Renal Disease (pre-ESRD) Education Initiative which is currently in progress aims to educate a large number of pre-ESRD patients on renal failure, dialysis and transplant options. Preliminary results suggest that the initiative influences the choice of dialysis regardless of race, age and co morbidities.

Nurses provide information education communication package to help patients to maintain health and cope with the chronic health problems. More specific teaching goals include maintenance of health, prevention of disease, appropriate selection and use of treatment options. Teaching can help the people to make informed decisions about health practices and treatment choices. In patients with chronic health problems, teaching can prevent complications and promote recovery. For those patients with chronic illnesses, teaching can promote self care and independence

Information education communication package regarding Renal Rehabilitation among patients undergoing Haemodialysis was the effective intervention involving active participation and imparting knowledge on End Stage Renal Disease, Exercise, Encouragement and Employment. Thus, education of patients early in the course of CRI offers many potential benefits for patients and healthcare professionals, including improved treatment outcomes, reduced anxiety, greater prospect for continued employment, improved timing for the start of dialysis and a greater opportunity for intervention to delay disease progression.

Literature related to education regarding Renal Rehabilitation

Lewis AL, et al., (2010) conducted a study on perceived informational needs, problems or concerns among patients with stage IV chronic kidney disease. There were 122 patients included in this study. The descriptive study design was used for this study. This study found the top four informational needs such as knowledge of kidney disease, taking medication the physician prescribed, care of an access and also financial concerns. The study findings showed that the above described four topics were included in educational process were more essential for chronic kidney failure patients.

Smith K, et al., (2010) done a study on fluid management in chronic hemodialysis. There were 997 patients participated in this study. The semi structured focus group design was used for this study. Patients were asked a series of open ended questions to encourage discussion about the management of fluid restriction. The study concluded that interventions to improve fluid restriction adherence of

chronic haemodialysis patient's should target motivational issues, assess and improve patient knowledge, augment social support and to facilitate accurate self assessment of fluid status.

Sabariego C, et al., (2010) conducted a study on incremental cost effectiveness analysis of a multi disciplinary renal education programme for patients with chronic renal disease. There were totally 231 patients participated in this study. The study concluded that the cost effectiveness of the multi disciplinary patient education highly depends on the level of limitation in kidney function and the intervention may be cost effective in maintaining patient with mild limitation in kidney function in the work force.

Wingard R, et al., (2009) conducted a study regarding right start program among dialysis patients in centre dialysis unit Brentwood. It incorporates case manager driven patient education, encouragement and empowerment in conjunction with facilitation of prompt and appropriate care provided by the interdisciplinary team. The result suggested that a program targeted to new patients on dialysis can significantly reduce early mortality and morbidity while increasing job satisfaction for professionals in the case managerial role.

Seto E, et al., (2007) has conducted a study on internet use by end stage renal disease patients in Toronto General Hospital at Canada. The objectives of this study were to ascertain the prevalence and predictors of internet use by ESRD patients among different dialysis modalities. A questionnaire surveying internet use was delivered in person to 199 conventional hemodialysis patients and mailed to 170 peritoneal dialysis patients. The study finding showed that a higher proportion of nocturnal hemodialysis patients used the internet compared with the peritoneal dialysis patients. Internet use was found to be more prevalent in younger and more educated and patients.

Schatell D, et al., (2006) done a randomized study regarding in center hemodialysis patients use of the internet in the United States. There were 1,804 patients participated in this study. National survey method was used for data collection. The result of this analysis stated that 34.7% had used the internet

themselves compared with 38% of disabled Americans. Internet use was more likely among patients who were younger. The study concluded that alerting patients to internet access at public libraries or providing a computer in dialysis clinic waiting rooms may help overcome many barriers.

Mehrota R, et al., (2005) conducted a study on patient education and access of ESRD patients to RRT beyond in center hemodialysis. There were 1365 patients participated in this study. Survey method was used to collect the data. The result of this analysis stated that the majority of ESRD patient were not presented with chronic peritoneal dialysis, home hemodialysis and renal transplantation as options. The study concluded that incomplete presentation of treatment options is an important reason for under utilization of home dialysis therapies.

Jaffery JB, et al., (2004) conducted a study on evaluation of ehealth websites for patient with chronic kidney disease at Unites States seven non proprietary and 4 proprietary web sites geared toward educating patient with chronic kidney disease were identified by using the internet to search the terms “Chronic Kidney Disease”, “Kidney Disease” and Chronic Renal Failure”. The result of the analysis stated that non proprietary sites were in compliance with an average of 5.2 principles, with a range of 3 to 8. Average compliance of proprietary websites with the health on the net code of conduct principles was 3.12, with the range of 2 to 4 of nonproprietary websites average reading grade level assessed by the fry readability scale was greatly than grade 14, with a range from grade II through graduate, school of proprietary sites, average, readability, was grade II with a range from grades 7 through 16. The study concluded that the internet has the potential to be a very powerful educational tool for patients with CKD.

Dafdeviren A, et al., (2003) conducted a study on education to reduce potassium levels in adolescent haemodialysis patients. There were 31 volunteers participated in this study. A semi-experimental survey research design was used in this study. The data were obtained through questionnaire. A manual was prepared with the aim of educating children in hyperkalemia, the participants were taught lesson in group of two to three at a time, the education programme was completed in

eight sessions. At the end of the programme each participants were given a copy of the manual. A month after the education programme participants were asked to refill the section of the questionnaire. The scores in this section had increased and blood potassium level had significantly decreased.

Cheng YY, et al., (2003) done a study on rehabilitating a dialysis patient at united Christian Hospital. There were 40 patients participated in this study. True experimental study design was used for this study. The Renal Rehabilitation includes physical, social, psychological and vocational elements. They established a Renal Rehabilitation program including pre dialysis education, in centre training and community Rehabilitation in their regional dialysis unit. The study concluded that those who joined the rehabilitation program showed significant lifestyle change.

Curtin RB, et al., (2002) done a study on Renal Rehabilitation and improved patient outcomes in Texas dialysis facilities. There were 169 dialysis facilities included in this study. The survey method was used to collect the data. The study finding showed that most participating facilities reported performing Rehabilitation activities in all five categories like encouragement, education, exercise, employment and evaluation. The median number reported was 32 of a possible 100 activities. Exercise interventions were the least often implemented activities. The conclusion suggests that the introduction of Rehabilitation intervention into the dialysis care regimen may prove beneficial.

Kollee I, et al., (2000) conducted a study on Haemodialysis teaching protocol for both patients and Nurses. The study formulated a set of 14 Haemodialysis teaching protocol. Individual protocols address specific aspects of the management of Haemodialysis treatments and implementation. It was based upon the Nursing Process Approach. Each protocol has an accompanying documentation and evaluation tool. It can be used as an indicator for continues quality improvement.

Caillette A, et al., (1998) has done a study on evaluation of information for renal insufficiency patient before dialysis at Lyon. The aim of this audit was to assess the quality of information given to patients before dialysis and to improve the use of this information on the acceptability of the treatment. Medical audit method was used

to collect the data. Result showed that patients received partial information on the various techniques used in dialysis needed more complete information.

Mc Cauley CR, et al., (1989) explained in his study that communication of information about therapeutic alternatives determine outcome of transplantation and dialysis. There were 59 patients with end stage renal disease and nine nephrologists and transplant surgeons participated in this study. The data were analyzed from questionnaires. The result indicated that personnel experience with transplantation can bias a patient's estimate of treatment outcome neither physicians nor patients had a bias toward optimism suggesting that physicians communicate personal views more easily than information.

Lock PM, et al., (1989) conducted a study on success of communication about renal transplantation between patients and doctor. There were 400 patients participated in this study. Questionnaire method was used to collect the data. The study concluded that written information must be backed up by personal enhancement at the stages a patient passes through and patient's associations provide a valuable way of giving information.

Literature related to exercise regarding Renal Rehabilitation

Kontos PC, et al., (2007) done a study on factors influencing exercise participation by older adults requiring chronic Haemodialysis. The qualitative research design was used in this study. The focus group discussion was used to collect the specific motivators and barriers to exercise participation in older adults requiring Haemodialysis. The study revealed that the motivators to exercise included patient aspirations to exercise and their experience of improvements from exercising, as well as formal incorporation of exercise into the overall dialysis treatment plan. The Barrier to exercise includes nurses' lack of encouragement to exercise, transportation issues and the use of exercise equipment.

Ling KW, et al., (2005) conducted a study on effect of a home exercise program in patients with end stage renal disease. There were 72 patients participated in this study. Each study participants received a video tape that demonstrated

30 minutes of low capacity aerobic exercise. Self reports on practice were recorded in a log book that was also provided. Encouragement was given over telephone. The result revealed that the home based exercise improved functional ability, muscle flexibility physical capacity and quality of life.

Knap B, et al., (2005) done a study on regular exercise as a part of treatment for patients with end stage renal disease. Physical inactive and negative influence on health and in quality of life is a common problem in patient with ESRD. Motivation for regular physical exercise also is a problem. A supervised outpatient program in a rehabilitation center, a Home Exercise Rehabilitation Program and an Exercise Rehabilitation Program during the first hours of the Haemodialysis treatment with a bed bicycle ergometry in the renal unit could be carried out. The study revealed that low intensity aerobic activity has a favourable effect on cardiovascular risk factor and also increase strength, flexibility and co ordination.

Parsons Tl, et al., (2004) done a study on the effect of an exercise program during hemodialysis on dialysis efficiency, blood pressure and quality of life in end stage renal disease patients. There were 13 patients participated in this study. The study design was true experimental study. Experimental group performed cycle ergometry exercise 3 times per week during their dialysis session at 40- 50 % maximal work capacity for 15 minutes. The result of this analysis stated that at the end of the exercise program urea clearance was significantly elevated in the experimental group and dialysis urea clearance decreased in the control group. The study concluded that exercise during dialysis enhanced dialysate urea removal but not serum urea clearance. The study also recommended that exercise during dialysis be performed during the first 2 hours of dialysis.

Sietsema KE, et al., (2004) done a study on exercise as a predictor of survival among ambulatory patients with end stage renal disease. There were 172 ESRD patients participated in this study. The result of this analysis stated that there were 23 deaths during the follow up period. The study concluded that among ambulatory ESRD patients peak oxygen uptake was stronger predictor of survival than many traditional prognostic variables.

Leaf DA, et al., (2003) explained in his study that isometric exercise increases the size of forearm veins in patients with chronic renal failure. There were 5 patients participated in this study. True experimental research design was used in this study. A repetitive squeezing of squash and racquet balls, the patient were obtained doppler ultra sound before and after the 6 week exercise training program. The study concluded that incremental resistance exercise training program can cause a significant increase in the size of the cephalic vein commonly used in the creation of an aterio-venous fistula. The increase in size and resultant probable increase in blood flow might accelerate the maturation of native Arterio Venous Fistula, thereby lessening the morbidity associated with vascular access.

Pipkin W, et al., (2003) done a study regarding effect of a home exercise program based on tai chi in patients with end stage renal disease. There were 72 participants were participated in this study. The video assisted quasi experimental study design was utilized for this study. The self report was used to collect the data. The result of this analysis revealed that significant improvements in the timed up and go, sit and reach, tests improvement in the six minute walk. In kidney disease quality of life short forum scores for emotional well being, pain, burden of kidney disease and general health were statically insignificant. This study concluded that physically patients with ESRD benefit from home based low capacity aerobic exercise and also home based program provides an alternative to outdoor and group exercise.

Pechter V, et al., (2003) conducted a study on beneficial effects of water based exercise in patients with chronic kidney disease. The exercise group did low intensity aerobic exercise in the pool during a period of 12 weeks, twice a week, with session lasting for 30 minutes. The result showed that in the exercise group all cardiopulmonary functional parameters improved and resting blood pressure lowered significantly proteinuria and lystatin were diminished and GFR was enhanced. This study concluded that regular water based exercise has beneficial effects on the cardio respiratory, renal functional parameters in patients with moderate renal failure.

Konstantinidou E, et al., (2002) done a comparative study on rehabilitation programs regarding exercise training in patients with end stage renal disease. There were 48 patients participated in this study. The experimental research design was used in this

study. The study revealed that intense exercise training on non dialysis days was the most effective way of training, whereas exercise during haemodialysis was also effective and preferable.

DePaul V, et al., (2002) conducted a study on the effectiveness of aerobic and nuscle strength training in patients receiving Haemodialysis. There were 100 patients participated in this study. The randomized controlled trial design was used in this study. The study concluded that the exercise program improved physical impairment measures but had no effect on symptoms or healthy related quality of life.

Painter P, et al., (2000) done a study on physical functioning and health related quality of life changes with exercise training in Haemodialysis patients. There were 236 patients participated in this study. The experimental study design was used in this study. The medical outcomes study short form 36 item questionnaire was used to assess self reported health status. The result revealed that clear improvement in physical functioning result from exercise counseling and encouragement in Haemodialysis patients.

Literature related to encouragement regarding Renal Rehabilitation

Yee A, et al., (2011) conducted a study to explore the knowledge, attitude and experience of renal health care professionals in Singapore on advanced care planning for patients with ESRD. There were 620 professionals participated in this study. Survey method was used to collect data. The result of this analysis stated that medical social workers and physician had higher knowledge score rather than other doctors. The study concluded that renal nurses must need encouragement to initiate discussions and be equipped with the skills to do advance care planning.

Kastrouni M, et al., (2010) done a study on quality of life of Greek patient with end stage renal disease undergoing haemodialysis. Comparisons were made with a similar study conducted United States in regards to the effects of Kidney disease in daily living, burden of kidney disease, work status, cognitive functioning, role physical on daily routine pain, general health perceptions, role emotions , emotional well being, social function and energy or fatigue. The emotional status has greater influence in quality of life in the US Study. The results were more positive in Greece with respect to dialysis

staff encouragement, patient satisfaction as well as acceptance and the understanding of illness. The result from this study reflects the difference of the health care systems in various countries as well as population related beliefs and values.

Yokoyama Y, et al., (2009) conducted a study on dialysis staff encouragement and fluid control adherence in patients on hemodialysis. There were 72 patients on hemodialysis participated in this study. The cross sectional research design was used for this study. The dialysis staff encouragement subscale was used to measure the outcome. The study concluded that dialysis staff encouragement is important in improving fluid control and adherence.

Barnett T, et al., (2008) done a study regarding fluid compliance among patients on hemodialysis. This study aimed whether an educational programme makes a difference. There were 26 patients participated in this study. An exploratory study design was used for this study. The study concluded that nephrology nurses often have long term relationships with their patients and are ideally placed to provide ongoing education and encouragement especially for those experiencing difficulties in adhering to fluid and dietary restrictions.

Painter P, et al., (2004) conducted a study on determinants of exercise encouragement practices in haemodiaysis staff. There were 100 patient care staff participated in this study. This was a cross sectional descriptive study in which questionnaire was completed by the patient care staff in five free standing hemodialysis clinics. The result of this analysis states that four variables significantly predicted exercise encouragement activity such as job position requiring professional training, the perception that patient lacked motivation to exercise, the perception that the staff member did not have skills to motivate patients to exercise and the perception that it was not a part of the job responsibility.

Literature related to employment regarding Renal Rehabilitation

Hirth RA, (2009) done a study regarding provider monitoring and pay for performance when multiple provides affects the outcomes, an application to renal dialysis. There were 2728 patients were participated in this study. The randomized research design was used for the study. The result revealed that for each measure both the

physician and the facility had significant effects. However, facilities were more influential than physician

Berger A, et al., (2009) conducted a study on cost comparison of peritoneal dialysis versus hemodialysis in end stage renal disease. There were 463 patients participated in this study. The study design was retrospective cohort study. The study result showed a total of 463 patients met all study entrance criteria. In that 56 began treatment with peritoneal dialysis, and 407 began treatment with hemodialysis. The study concluded that the peritoneal dialysis patients are less likely than hemodialysis patients to be hospitalized in the year following indication of dialysis. They also have significantly lower total health care costs.

Porter E, et al., (2007) done a study on quality improvement through the introduction of interdisciplinary geriatric hemodialysis rehabilitation care at Toronto. There were 164 patients participated in this study. Quality improvement report method used to collect data. The result of this analysis stated that on admission, patients had difficulty walking and most of them required help with bed to chair transfers. The study concluded that the introduction of an integrated dialysis rehabilitation service can help older dialysis patients with new onset functional decline return to their home.

Van Maren, JG, et al., (2001) done a study on changes in employment status in end stage renal disease patient during their first year of dialysis. There were 659 patients participated in this study. The design of the study was prospective follow up study. The result of the analysis stated that at the start of dialysis 35% of patients were employed. The proportion of employed patients decreased to 25%. The study concluded that improvements in physical and psychosocial functioning were potential preventive of loss of work in patients who were employed when they start dialysis.

Blake C, et al., (2000) done a study on physical function, employment and quality of life in end stage renal disease. There were 144 patients participated in this study. The cross sectional study design was used for the study. The study concluded that vocational rehabilitation of ESRD patients must consider physical function and occupational demand as well as co morbidity and that musculo skeletal disease is the key factor in impaired physical function.

Holley JL, et al., (1994) conducted a study regarding an analysis of factors affecting employment of chronic dialysis patients. There were 46 patients participated in this study. The descriptive study design was used for this study. The study concluded that the education plays a important role in determining employment status whereas sex, race, diabetes mellitus and mode of dialysis were not associated with the employment status.

Rasgon S, et al., (1993) conducted a study on an intervention for employment maintenance among blue collar workers with ESRD. There were 102 patients participated in this study. The non randomized control trial was used for the study. The result of this analysis stated that a significantly higher proportion of blue collar workers who received the intervention continued working after beginning dialysis. The study concluded that the effectiveness of the intervention highlights the importance of early psychosocial intervention in assisting in center hemodialysis patient.

Calsyn DA, et al., (1981) done a study on vocational adjustment and survival on chronic hemodialysis. There were 71 patient participated in this study. The result of this analysis stated that 47 employed patients survived longer than unemployed, part time workers lived longer than full time workers. The study concluded that patients on chronic dialysis appeal to live longer if they have been employed fulltime.

Rasgon SA, et al., (1976) conducted a case controlled study on benefits of a multidisciplinary pre dialysis program on home dialysis. There were 30 patients included in this study. The patients went through a multidisciplinary pre dialysis program which consisted of psychosocial assessment, education about dialysis and choice of modalities, orientation to dialysis unit and counselling sessions with patients. The study concluded that employment was maintained by pre dialysis multi disciplinary program.

The review of literature included the related studies which provide a strong foundation for the study including the basis for conceptual framework and formation of tool.

PART II

CONCEPTUAL FRAMEWORK

Imogene king Goal Attainment theory is based on personnel and interpersonal system including interaction, perception, communication, transaction, stress, growth and development, time and action.

Imogene King defined Nursing is “A process of human interaction between the nurse and the client whereby each perceives the other and the situation and through communications. They set goals, explore means and degree on means to achieve goals”.

Perception

It referred to person representation of reality. It was universal yet highly subjective and unique to each other. Here the researcher’s perception was that the ESRD patients may have lack of knowledge regarding Renal Rehabilitation. The ESRD patients too perceived to gain more knowledge regarding Renal Rehabilitation.

Judgment

The researcher’s judgment was that the IEC package can enhance more knowledge regarding Renal Rehabilitation. The ESRD patients too judged that utilization of IEC package can enhance knowledge regarding Renal Rehabilitation.

Action

The researcher’s action was implementing IEC package regarding Renal Rehabilitation among patients undergoing Haemodialysis. ESRD patients were ready to gain knowledge, learnt from IEC package and structured questionnaire regarding Renal Rehabilitation.

Interaction

It referred to verbal and non verbal behaviour of individual and environment and between two or more individual with a purpose to achieve goal. It included the goal directed perception and communication. Here the researcher interacted with the ESRD patients by administering IEC package regarding Renal Rehabilitation.

Transaction

It referred to an observable, purposeful behavior of an individual interacting with their environment to achieve the desired goal. At this stage the researcher analyzed the level of knowledge of the ESRD patients regarding Renal Rehabilitation.

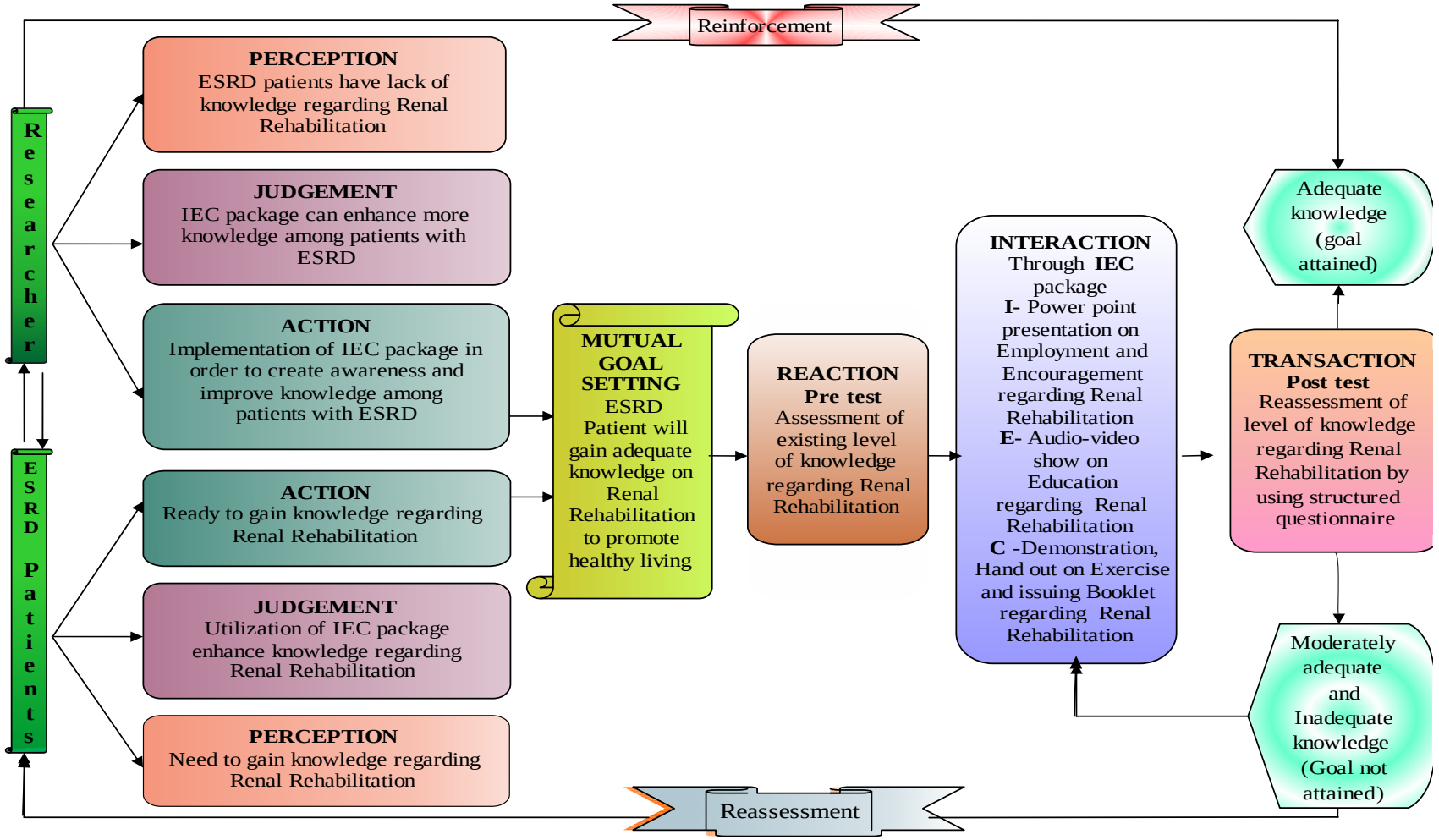

Fig. 1 : MODIFIED IMOGENE KING'S GOAL ATTAINMENT THEORY(1981)

CHAPTER - III

METHODOLOGY

The methodology of any investigation is vital importance. The success of any research depends largely upon the suitability of the method, the tools and the techniques that the researcher follows to gather adequate data.

The chapter dealt with a brief description of the methodology adopted by the researcher. This chapter included research design, setting of the study, population, sample, sample size, sampling technique, criteria for sample selection, description of the instrument, pilot study and data collection procedure.

RESEARCH DESIGN

The design selected for the study was pre experimental one group pre test post test design.

SETTING OF THE STUDY

This research study was conducted in dialysis unit of Apollo Hospitals at Chennai. This was a 675 bedded multi specialty Hospital. It has five floors consists of all specialities including emergency, critical care, general medicine, geriatric medicine, cardiology, neurology, nephrology, urology, gastrology, pulmonology, orthopedics and a separate high tech dialysis unit. This high tech Dialysis unit was situated in first floor. This unit consists of 50 beds for hemodialysis and peritoneal dialysis. This functions round the clock, for in patients and out patients. There were three shifts of haemodialysis schedule which starts from 7 am to 3 pm, 12 noon to 8 pm and 8 pm to 7am.

POPULATION

The target population for the study was all the patients who were undergoing Haemodialysis at Dialysis Unit of Apollo Hospitals at Chennai.

SAMPLE

The sample consists of patients undergoing haemodialysis and above who fulfill the inclusion criteria.

SAMPLE SIZE

The sample number consists of 30 patients undergoing haemodialysis with ESRD.

SAMPLING TECHNIQUE

Purposive sampling technique was used to select the samples. The ESRD patients who were undergoing haemodialysis in dialysis unit of Apollo Hospitals at Chennai, who meets the inclusion criteria were selected.

CRITERIA FOR SAMPLE SELECTION

Inclusion criteria

- Patients who were in the age group of 21 – 70 years.
- Patients with ESRD undergoing Haemodialysis.
- Both male and female patients undergoing Haemodialysis.
- Patients who knows to speak English.

Exclusion Criteria

- Patients who were not willing to participate in this study.
- Patients undergoing haemodialysis from in patient department.
- Patients undergoing haemodialysis and peritoneal dialysis.

DESCRIPTION OF THE INSTRUMENT

The tool consists of three parts which includes,

Part-I

The personal variables consist of age, gender, educational status, occupation, marital status, place of residence and income. The clinical variables include presence of co morbidity, frequency of dialysis per week and physical activity.

Part -II

An interview schedule was used to assess the level of knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis. The instrument was developed by the researcher regarding Renal Rehabilitation. It consists of 45 items related to Education, Exercise, Encouragement and Employment. Each component consists of 5 to 15 questions. Each correct answer was given a score of 1 and wrong answer was given a score of 0.

Scoring interpretation

Adequate knowledge - 76% -100%
Moderately adequate Knowledge - 51% - 75%
Inadequate knowledge - $\leq$50%

Part-III

The module consists of information about Renal Rehabilitation such as education, exercise, encouragement and employment. Various audio visual aids like video clips, power point presentation, hand out and booklet were used for the IEC package regarding Renal Rehabilitation among patients undergoing Haemodialysis.

VALIDITY

The content validity of the instrument was obtained from the experts in the field of Nephrology.

RELIABILITY

Reliability was measured by test retest method. The reliability score obtained was r = 0.84 which represents that the tool was highly reliable to conduct the study.

ETHICAL CONSIDERATION

The study was conducted after the approval of dissertation committee of Apollo Hospitals at Chennai. Formal permission was obtained from the Director of Medical Service of Apollo Hospitals at Chennai. Patients undergoing Hemodialysis were clearly explained about the study purpose and procedures. The formal written consent was taken from the samples. The usual assurance of the anonymity and confidentiality was obtained.

PILOT STUDY

The refined tool was used for pilot study to test the feasibility appropriateness and practicability. The pilot study was conducted in Apollo Hospitals at Chennai from the duration of 18-04 2011 to 24-04-2011.A formal permission was obtained from the higher authorities and also obtained the consent from the patients. It was carried out with 3 patients who fulfilled the inclusion criteria. Purposive sampling method was used to select the patients undergoing Haemodialysis.

The brief introduction was given and explained the purpose of the study to the patients to get their co operations. The tool was explained in detail to the patients undergoing Haemodialysis. An interview schedule was conducted to the patients to assess the pretest level of knowledge regarding Renal Rehabilitation and time taken for each patient was 30 minutes. After that IEC package was given to the patients undergoing Haemodialysis with the duration of 20-30 minutes regarding Renal Rehabilitation. Post test was conducted by using the same tool.

The result of the study showed that IEC package was effective to improve the knowledge regarding the Renal Rehabilitation. The researcher got the patients adequately. The study was feasible. The tool used in pilot study was used for the main study.

DATA COLLECTION PROCEDURE

The researcher made an interview schedule to assess the level of knowledge regarding Renal Rehabilitation. The permission obtained from the higher authorities in Apollo Hospitals at Chennai. The data collection procedure was started form 01.06.11 to 30.06.11 in Apollo Hospitals at Chennai. The study was carried out with total of 30 patients, who fulfilled the inclusion criteria. The researcher introduced himself to the patients and purpose of the study was explained to ensure better co operation during data collection.

Every day three to five patients undergoing Haemodialysis were assessed on knowledge regarding Renal Rehabilitation. The tool was explained in detail to the patients. An interview schedule was conducted to the patients to assess the pre test level of knowledge regarding Renal Rehabilitation and time taken for each patient was 30 minutes. Then IEC package was given to the patients undergoing Haemodialysis with the duration of 20-30minutes regarding Renal Rehabilitation. After a week the post test level of knowledge was assessed by using the same tool.

DATA ANALYSIS

The data obtained were analyzed using both descriptive and inferential statistics. Frequency and percentage distribution was used to determine the demographic variables and level of knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis. Mean and standard deviation was used to determine the knowledge of patient regarding Renal Rehabilitation among patients undergoing Haemodialysis. Student dependent ‘t’ test was used to assess the effectiveness of IEC package on knowledge regarding Renal Rehabilitation. Yates corrected chi square test was used to analyze the association between the pre test and post level of knowledge with selected demographic variables.

The research methodology included the procedure and technique for conducting the study. The research methodology dealt with initial identification of the problem to its final conclusion.

A STUDY TO ASSESS THE EFFE CTIVENESS OF INFORMATION EDUCATION COMMUNICATION PACKAGE ON KNOWLEDGE REGARDING RENAL REHABILITATION AMONG PATIENTS UNDERGOING HAEMODIALYSIS IN DIALYSIS UNIT OF APOLLO HOSPITALS AT CHENNAI.

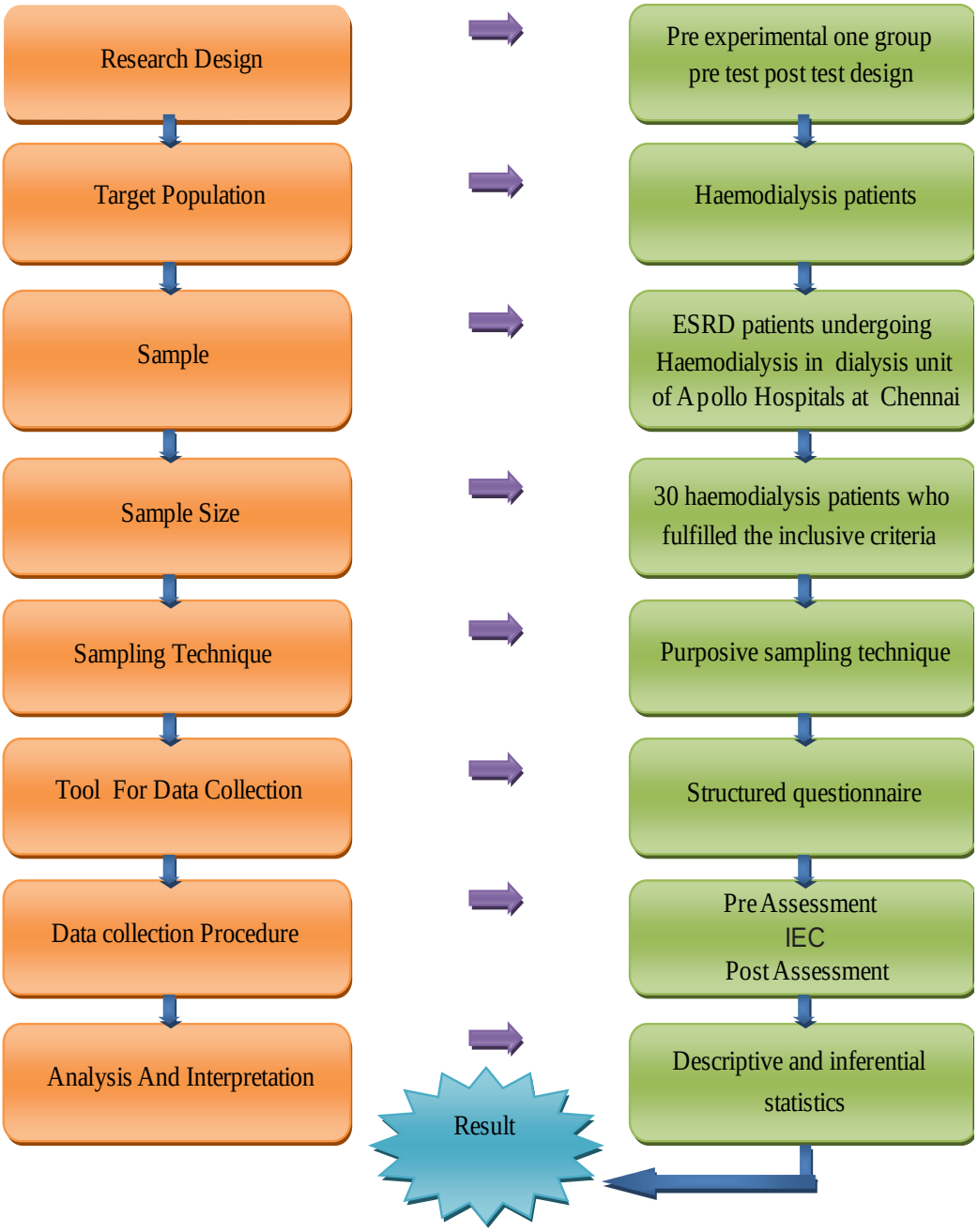

Fig. 2 : Schematic representation of resear ch methodology adapted in this study

CHAPTER-IV

DATA ANALYSIS AND INTERPRETATION

It is a systematic organization and synthesis of research data in order to answer the research question and test hypothesis. Interpretation is the process of making sense of study results and of examining their implication. The data findings have been analyzed and tabulated in accordance to the plan for data analysis and are interpreted under the following headings.

Section A: Frequency and percentage distribution of demographic variables of patients undergoing Haemodialysis.

Section B: Frequency and percentage distribution of pre test level of knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis.

Section C: Frequency and percentage distribution of post test level of knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis.

Section D: Comparison of frequency and percentage distribution of pre test and post test level of knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis.

Section E: Effectiveness of IEC package on knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis.

Section F: Comparison of mean and standard deviation of pre test and post test level of knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis.

Section G: Association of pre test and post test level of knowledge with the selected demographic variables of patients undergoing Haemodialysis.

SECTION – A

Table 1: Frequency and percentage distribution of personal variables of patients undergoing Haemodialysis.

N=30

S. No	Personal Variables	Frequency	Percentage
1.	**Age in years**		
	21- 30	7	23.3
	31- 40	5	16.7
	41- 50	3	10.0
	51- 60	5	16.7
	>60	10	33.3
2.	**Gender**		
	Male	26	86.7
	Female	4	13.3
3.	**Education**		
	Higher Secondary	5	16.7
	Graduate	25	83.3
4.	**Marital Status**		
	Married	24	80.0
	Unmarried	6	20.0
5.	**Occupation**		
	Employed	10	33.3
	Unemployed	3	10.0
	Others	17	56.7
6.	**Monthly Income**		
	≤Rs.2000	2	6.7
	Rs.2001 – 4000	3	10.0
	Rs.4001 – 6000	4	13.3
	Rs.6001 – 8000	1	3.3
	>8000	20	66.7
7.	**Place of Residence**		
	Rural	7	23.3
	Urban	23	76.7

Table 1 depicts the frequency and percentage distribution of personal variables of patients undergoing Haemodialysis..With respect to the age of patients with ESRD, 7(23.3%) patients were in the age group of 21-30 years, 5(16.7%) patients were in the age group of 31-40 years, 3(10.0%) patients were in the age group of 41-50 years, 5(16.7%) patients were in the age group of 51-60 years and 10(33.3%)patients were in the age group of more than 60 years.

With respect to sex of patients with ESRD, the majority of the patients 26(86.7%) were males and 4(13.3%) patients were females. With regard to educational status of patients with ESRD, the majority of the patients 25(83.3%) were graduates and 5(16.7%) patients had higher secondary education.

Considering marital status of patients with ESRD, the majority of the patients 24(80.0%) were married and 6(20.0%) patients were unmarried. In regard to occupation of patients with ESRD, the majority of the patients 17(56.7%) were in the category of others, 10(33.3%) patients were employed and 3(10.0%) patients were unemployed.

In accordance with monthly income of patients with ESRD, the majority of the patients 20(66.7%) were getting more than Rs 8,000, 4(13.3%) patients were getting Rs. 4,001 to 6,000,3(10.0%) patients were getting Rs. 2,001 to 4,000, 2(6.7%) patients were getting less than Rs 2,000 and 1(3.3%) patients getting Rs 6,001 to 8,000.

Related to place of residence of patients with ESRD, the majority of the patients 23(76.7%) were coming from urban area and 7(23.3%) patients were coming from rural area.

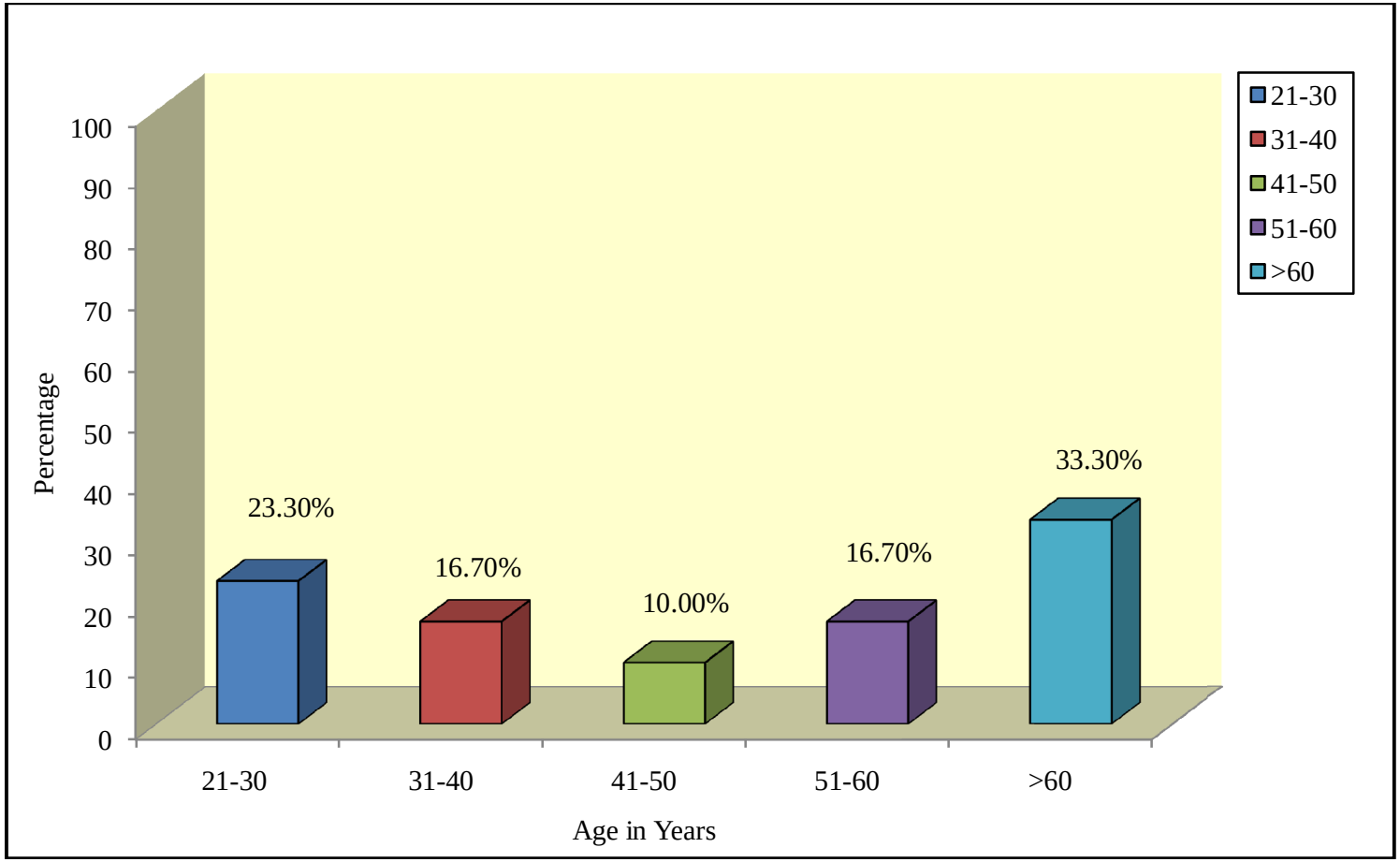

Fig. 3: Percentage distribution of age among patients undergoing Haemodialysis

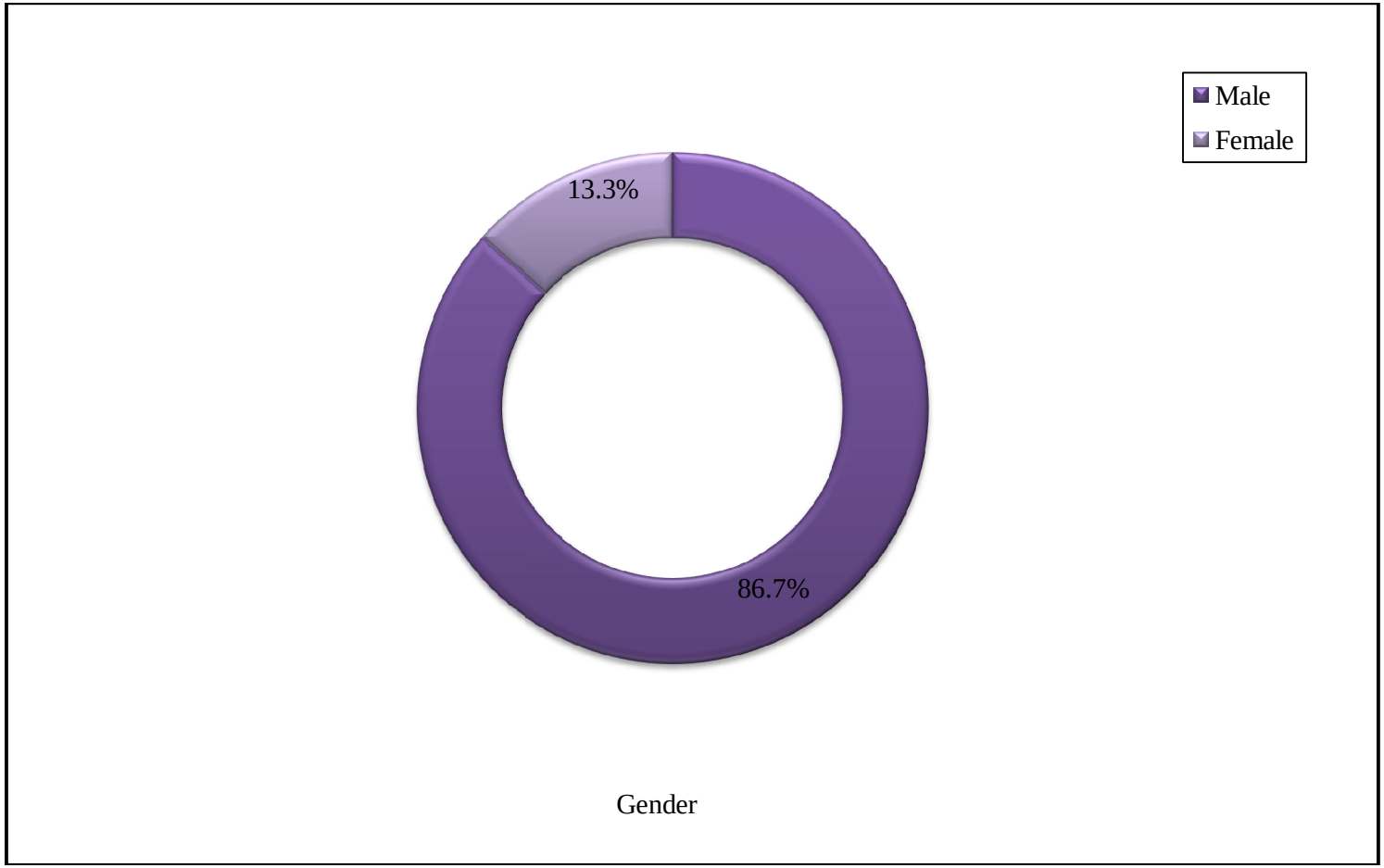

Fig. 4: Percentage distribution of gender among patients undergoing Haemodialysis

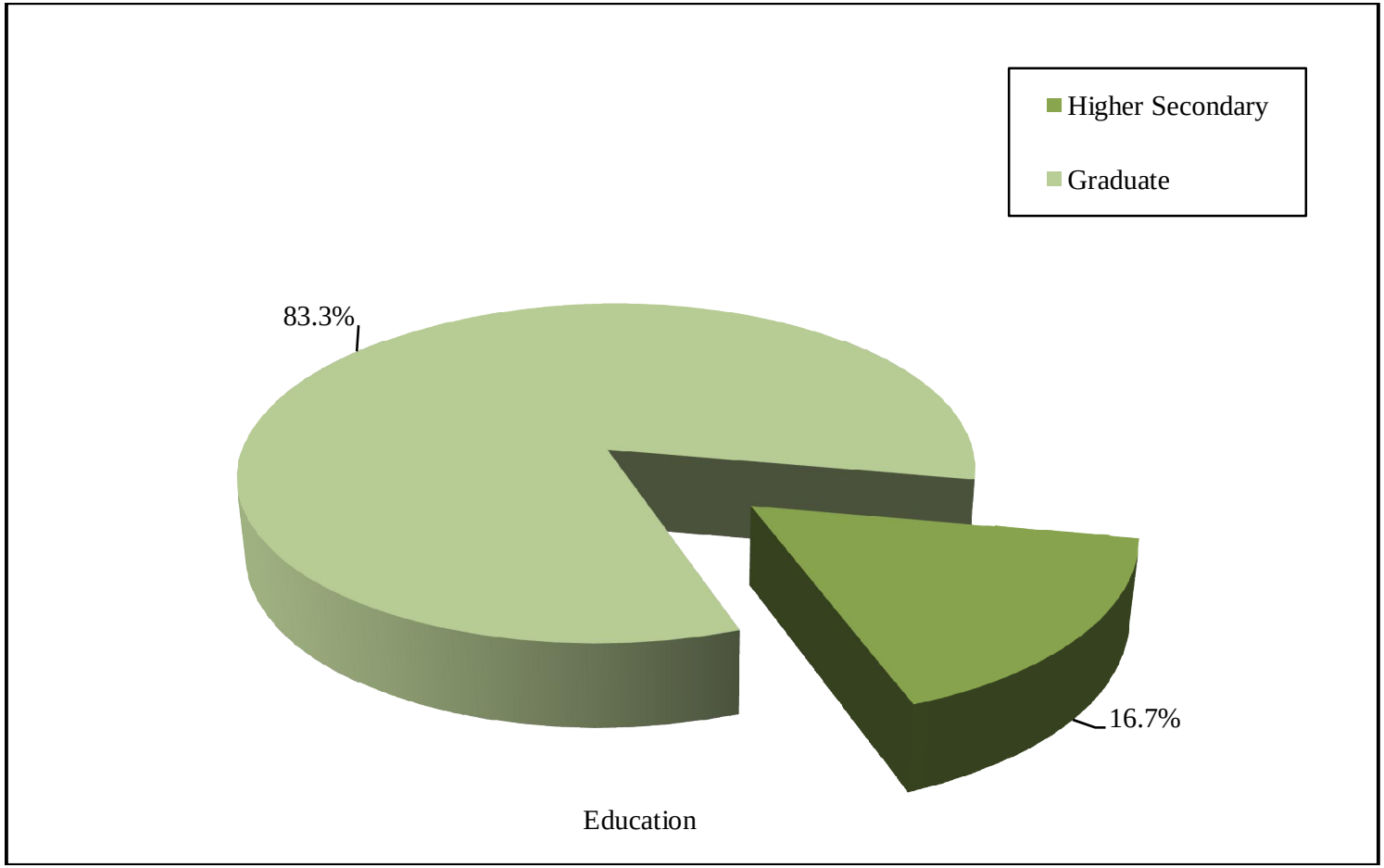

Fig. 5: Percentage distribution of education among patients undergoing Haemodialysis

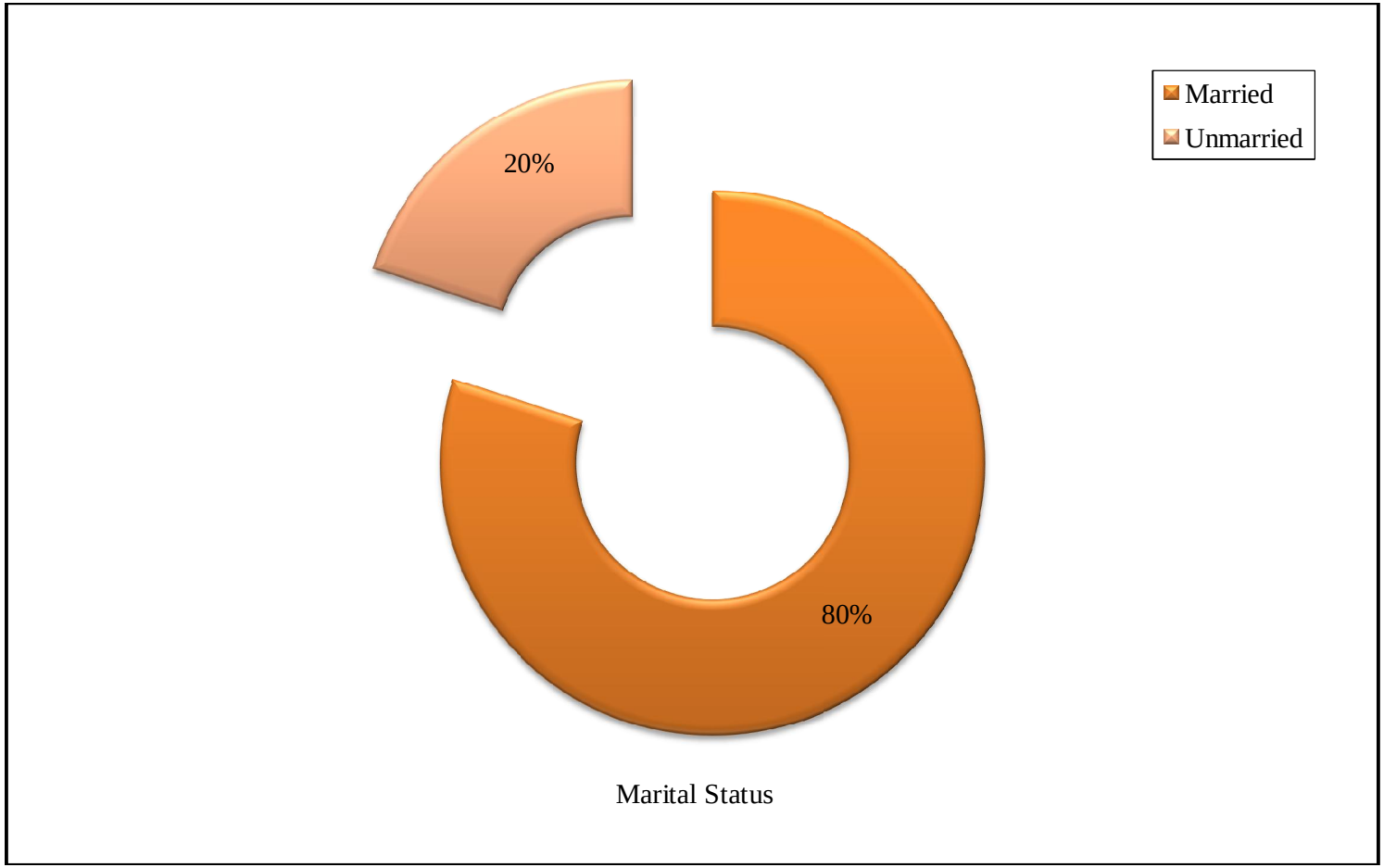

Fig. 6: Percentage distribution of marital status among patients undergoing Haemodialysis

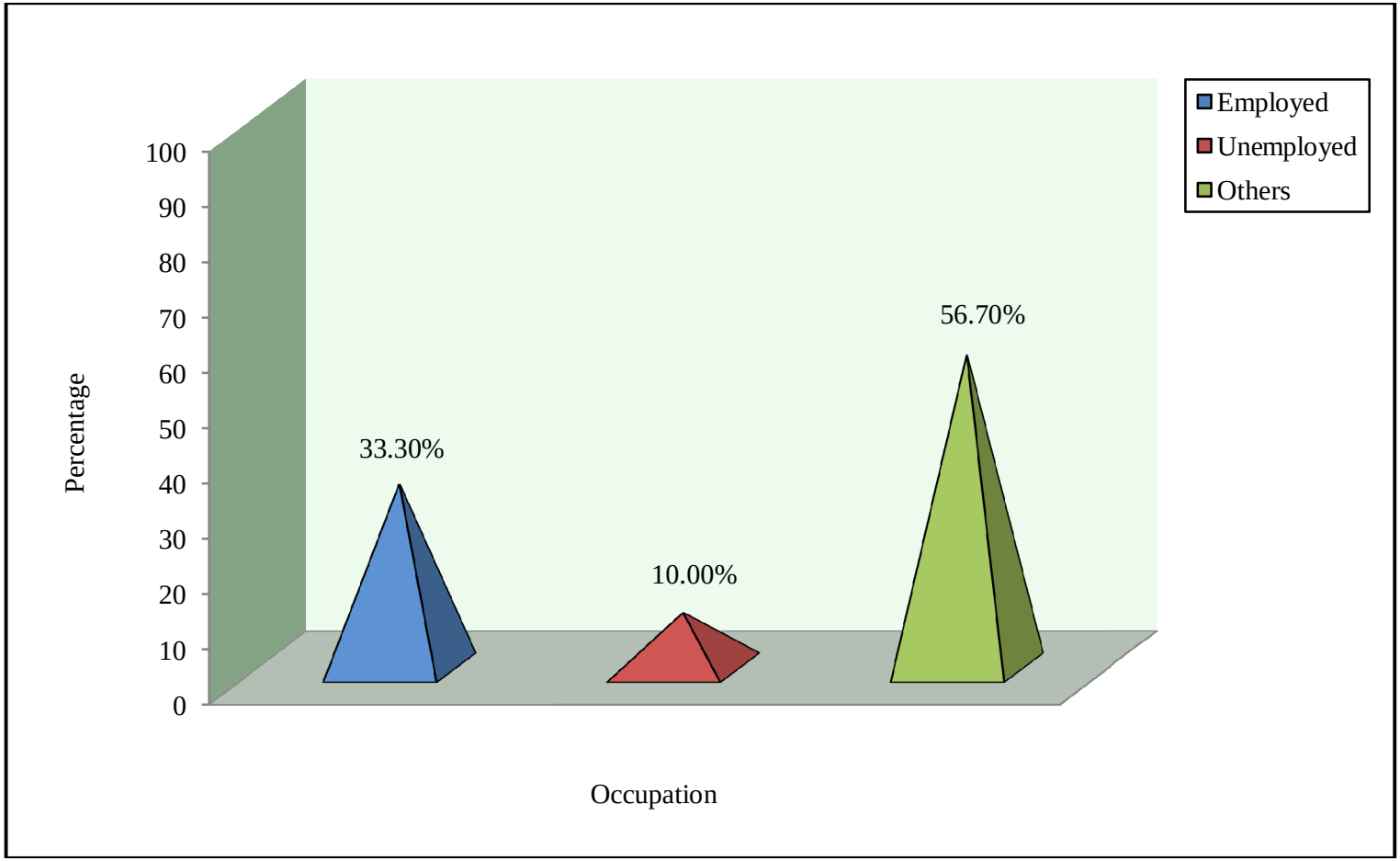

Fig. 7: Percentage distribution of occupation among patients undergoing Haemodialysis

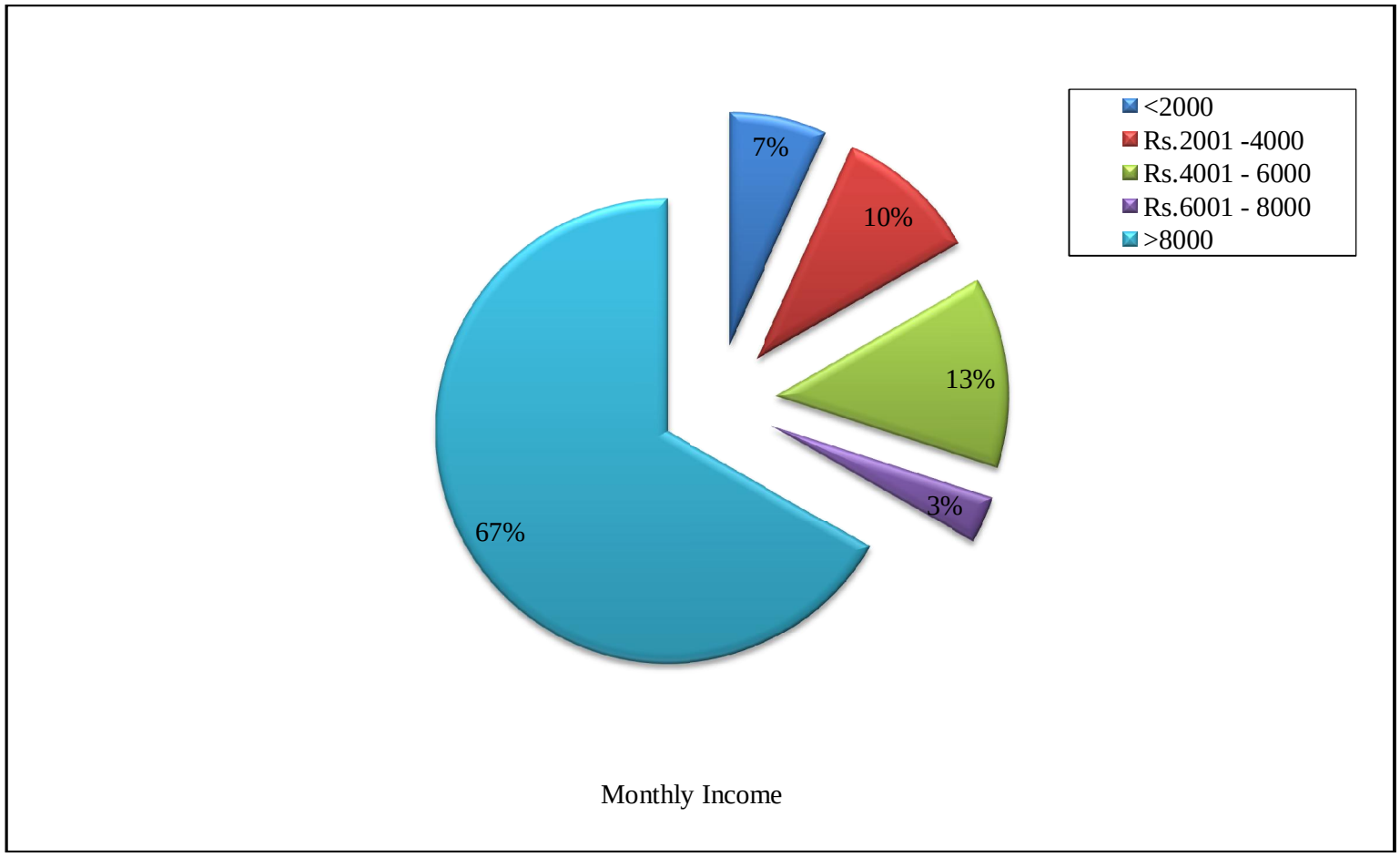

Fig. 8: Percentage distribution of monthly income among patients undergoing Haemodialysis

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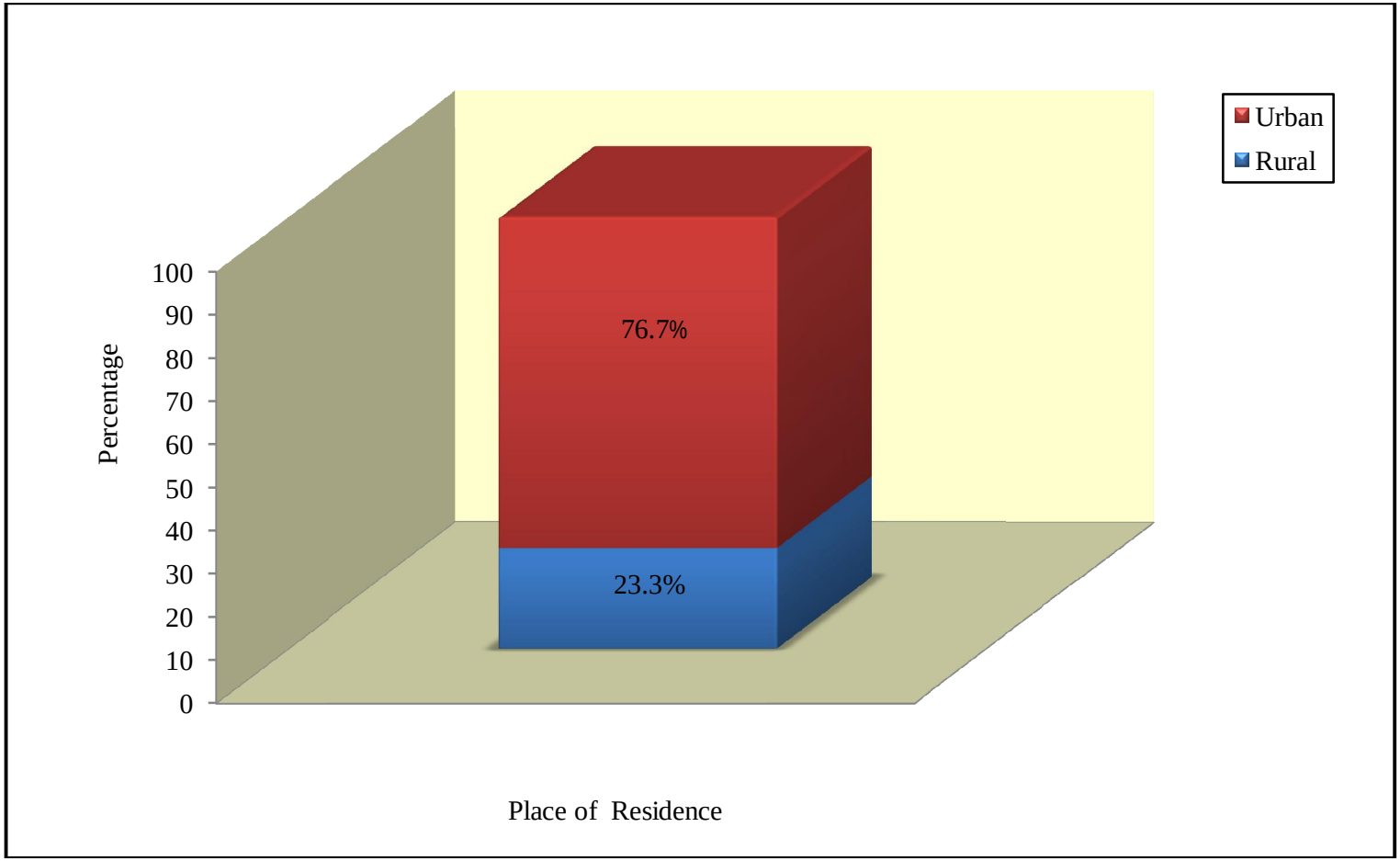

Fig. 9: Percentage distribution of place of residence among patients undergoing Haemodialysis

Table 2: Frequency and percentage distribution of clinical variables of patients undergoing Haemodialysis.

N=30

S. No	Personal Variables	Frequency	Percentage
1.	**Co morbidity**		
	Cardiac Disease	1	3.3
	Diabetes mellitus	5	16.7
	Hypertension	18	60.0
	Diabetes mellitus & Hypertension	6	20.0
2.	**Frequency of Dialysis per week**		
	Twice	3	10.0
	Thrice	27	90.0
3.	**Physical Activity**		
	Heavy	3	10.0
	Moderate	19	63.3
	Sedentary	8	26.7

Table 2 depicts the frequency and percentage distribution of clinical variables of patients undergoing Haemodialysis. In regard to co morbidity of patients undergoing Haemodialysis, the majority of the patients 18(60.0%) were having hypertension, 6(20.0%) patients is having diabetes and hypertension, 5(16.7%) patient were having diabetes mellitus and 1(3.3%) patients have cardiac diseases.

With regard to frequency of dialysis of patients with ESRD, majority of patients 27(90.0%) were getting dialysis weekly thrice and 3(10.0%) patients were getting dialysis weekly twice .With respect to physical activity of patients with ESRD, 19(63.3%) patients were having moderate physical activity, 8(26.7%) patients were having sedentary physical activity and 3(10.0%) patients were having heavy physical activity.

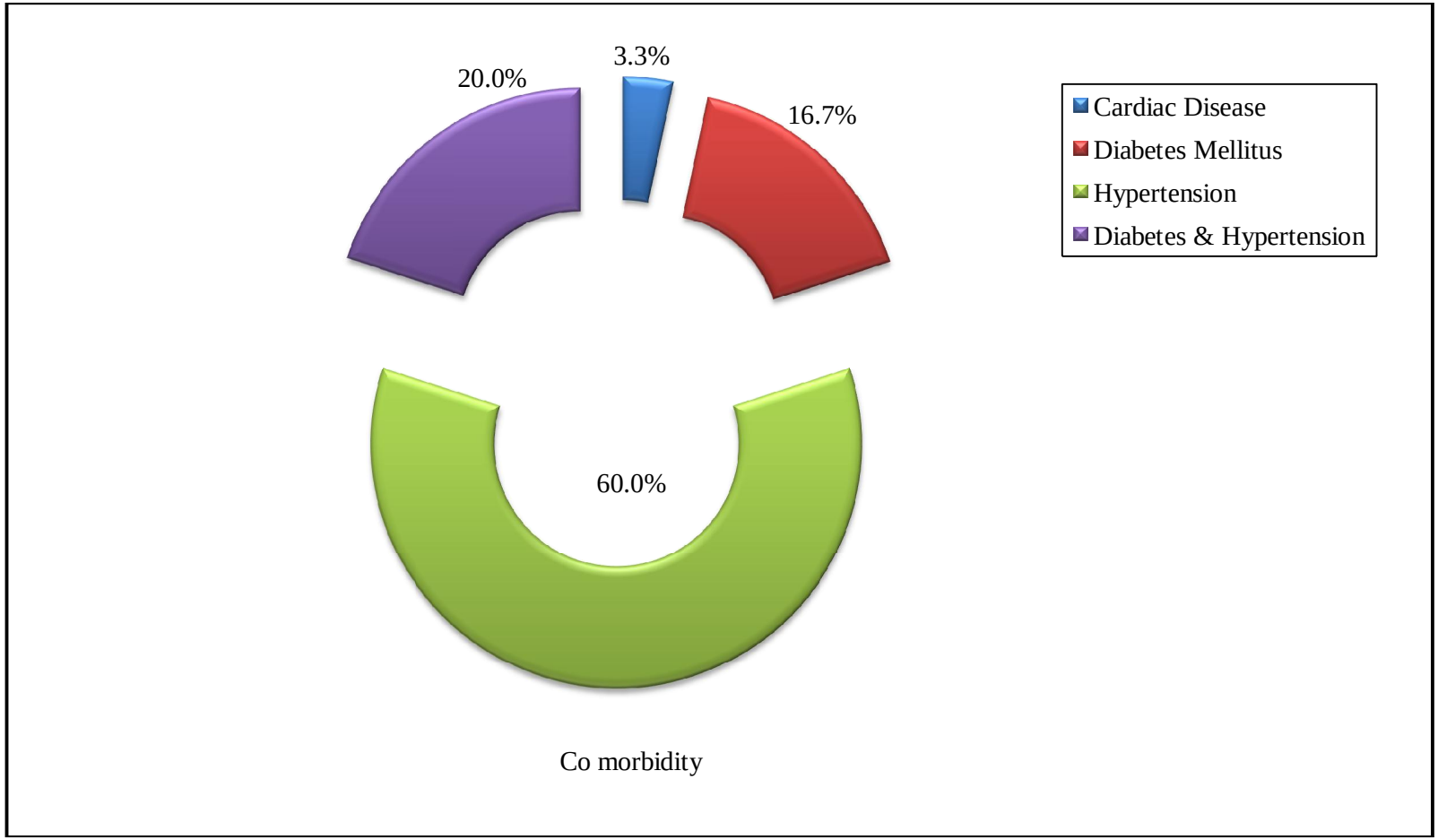

Fig. 10: Percentage distribution of co morbidity among patients undergoing Haemodialysis

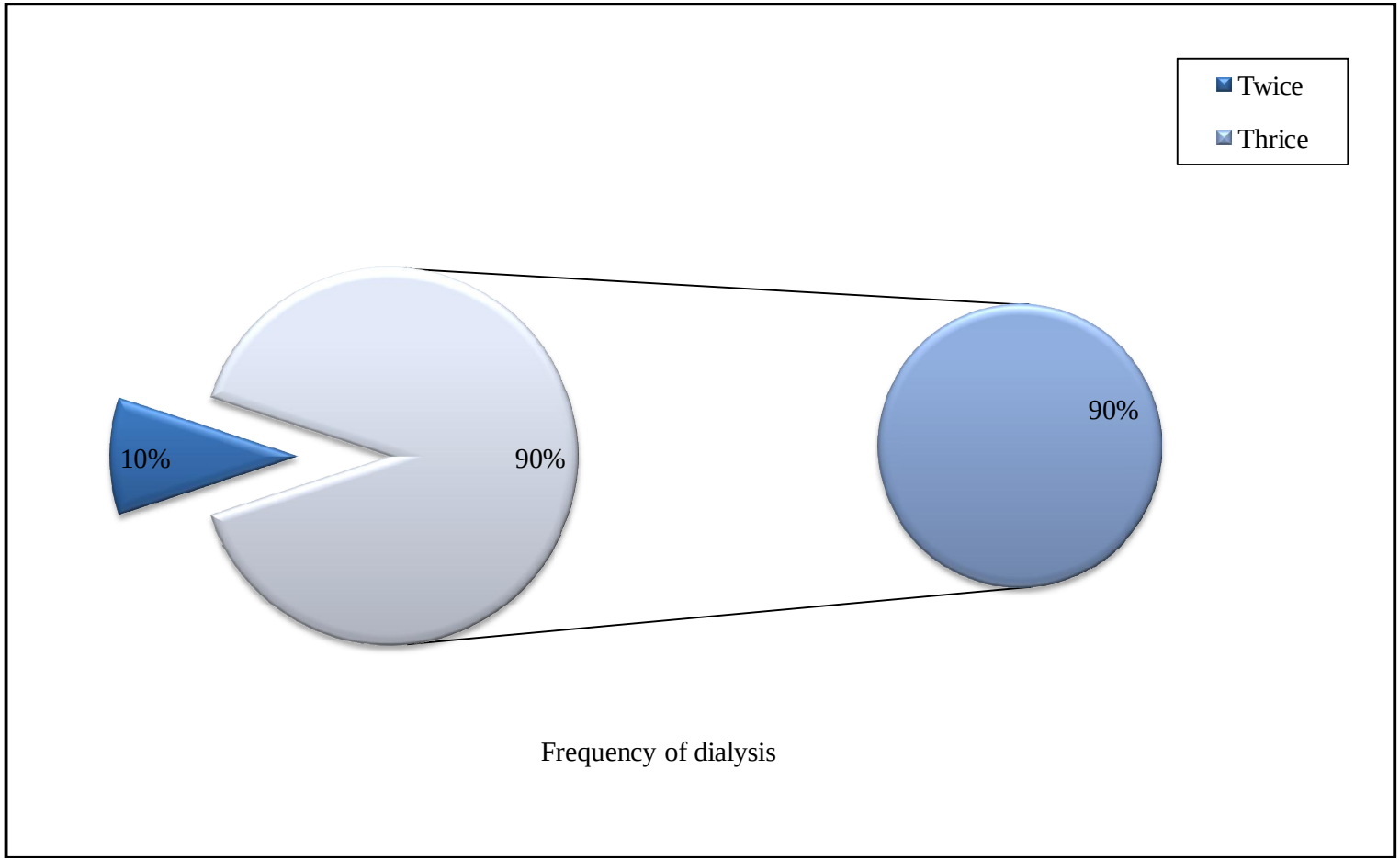

Fig. 11: Percentage distribution of frequency of dialysis among patients undergoing Haemodialysis

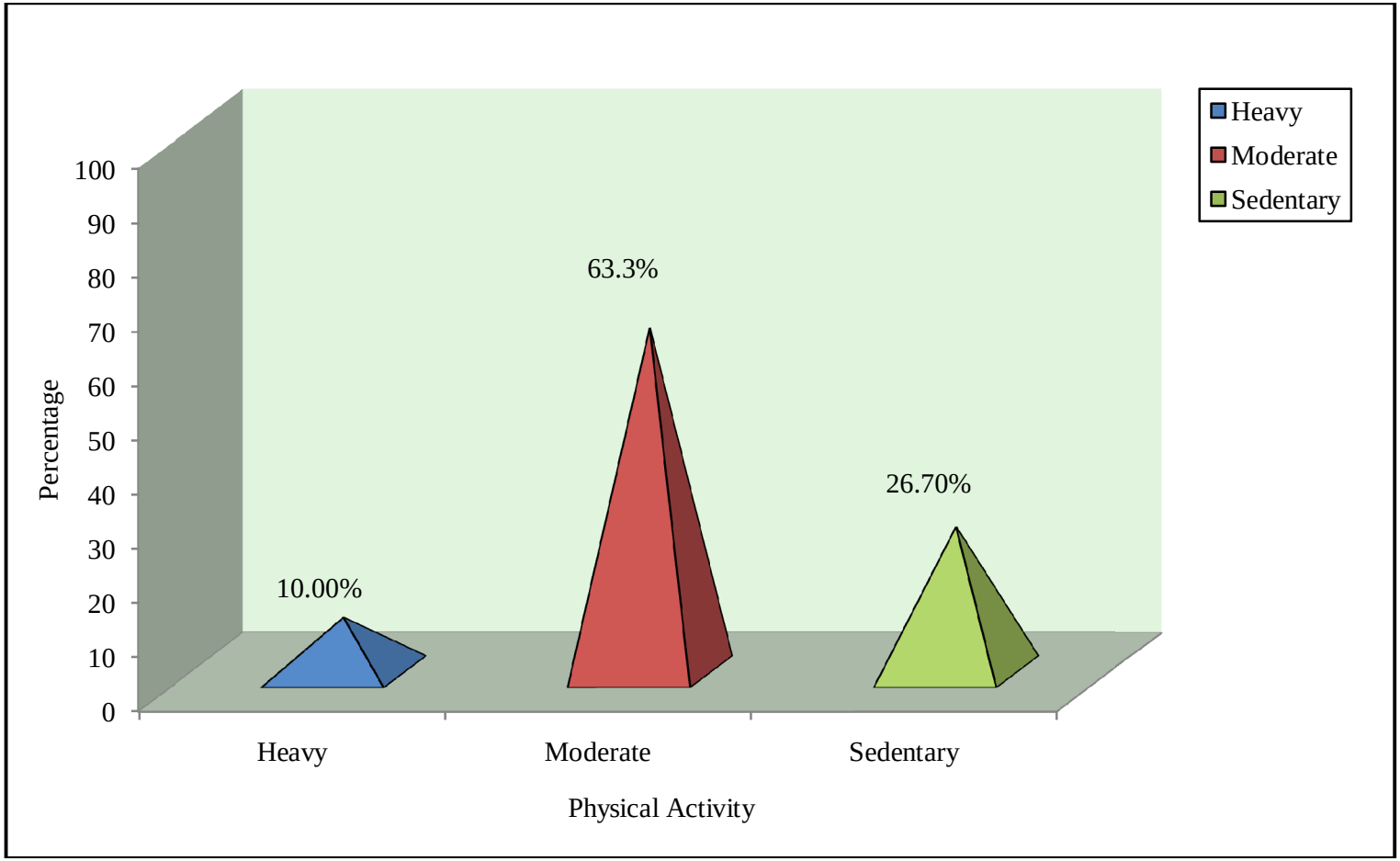

Fig. 12: Percentage distribution of physical activity among patients undergoing Haemodialysis

SECTION – B

Table 3: Frequency and percentage distribution of pre test level of knowledge Regarding Renal Rehabilitation among patients undergoing Haemodialysis.

N=30

Level of Knowledge	Pre test	
	Frequency	**Percentage**
Inadequate	19	63.3
Moderately adequate	11	36.7
Adequate	0	0.0

Table 3 represents the frequency and percentage distribution of pre test level of knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis. In pre test level of knowledge, 19(63.3%) patients had inadequate knowledge, 11(36.7%) patients had moderately adequate knowledge and none of the patients had adequate knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis.

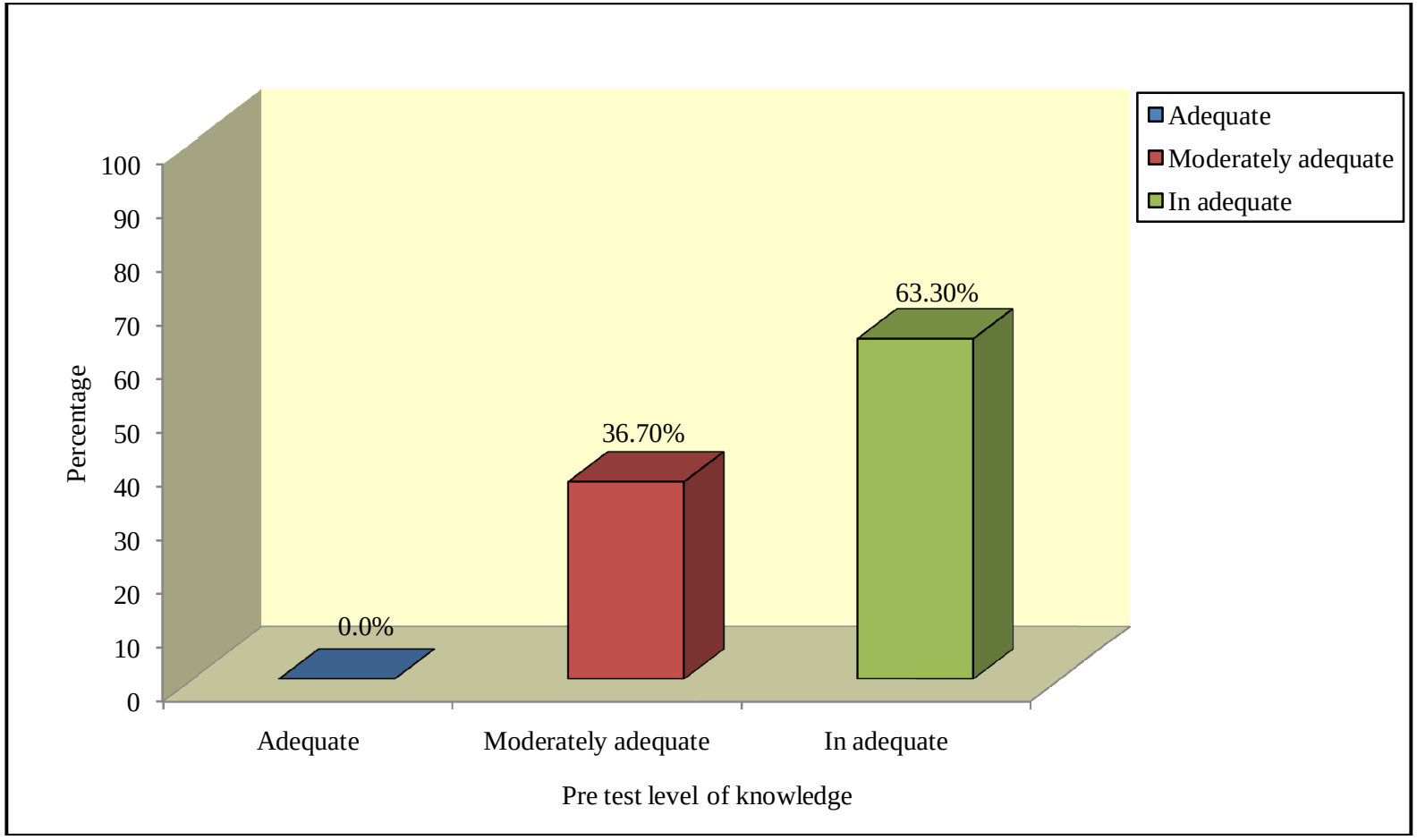

Fig. 13: Percentage distribution of pre test level of knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis

Table 4: Mean and percentage distribution of pre test knowledge regarding components of Renal Rehabilitation among patients undergoing Haemodialysis.

Components of Renal Rehabilitation	Pre test Knowledge Score	
	Mean	**Percentage**
Education	11.2	56.4
Exercise	6.67	44.5
Encouragement	2.70	54.0
Employment	2.00	40.0

Table 4 represents the mean and percentage distribution of pre test knowledge regarding components of Renal Rehabilitation among patients undergoing Haemodialysis. It reveals that, with regard to components of Renal Rehabilitation the patients had 56.4% of knowledge score about education, 44.5% of knowledge score about exercise, 54.0% of knowledge score about encouragement and 40.0% of knowledge score about employment.

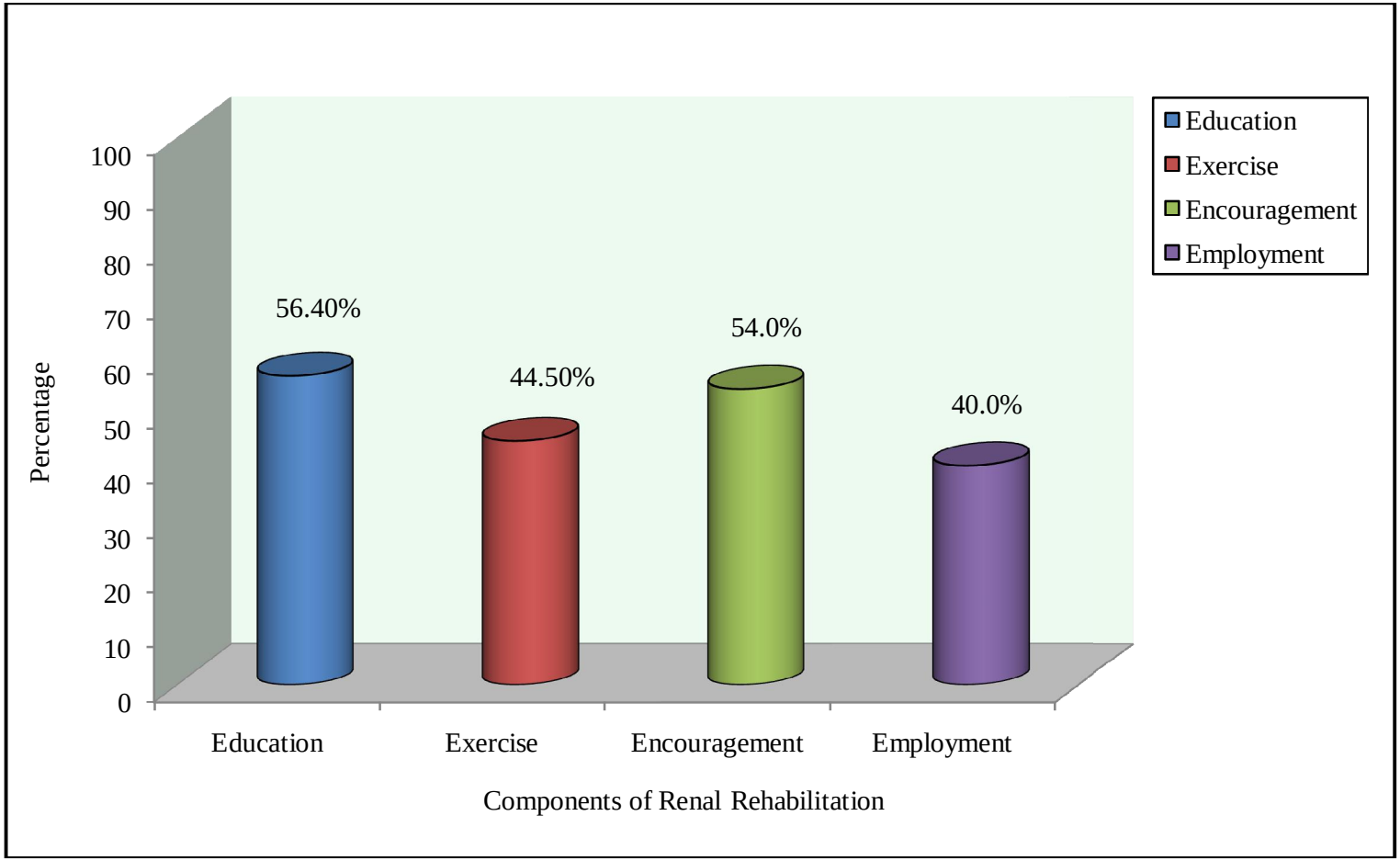

Fig. 14: Percentage distribution of pre test knowledge regarding components of Renal Rehabilitation among patients undergoing Haemodialysis

SECTION – C

Table 5: Frequency and percentage distribution of post test level of knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis.

N=30

Level of Knowledge	Post test	
	Frequency	**Percentage**
Inadequate	0	0.0
Moderately adequate	6	20.0
Adequate	24	80.0

Table 5 shows the frequency and percentage distribution of post test level of knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis. In post test level of knowledge, the majority of the patients 24(80%) had adequate knowledge, 6(20%) patients had moderately adequate knowledge and no one had inadequate knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis.

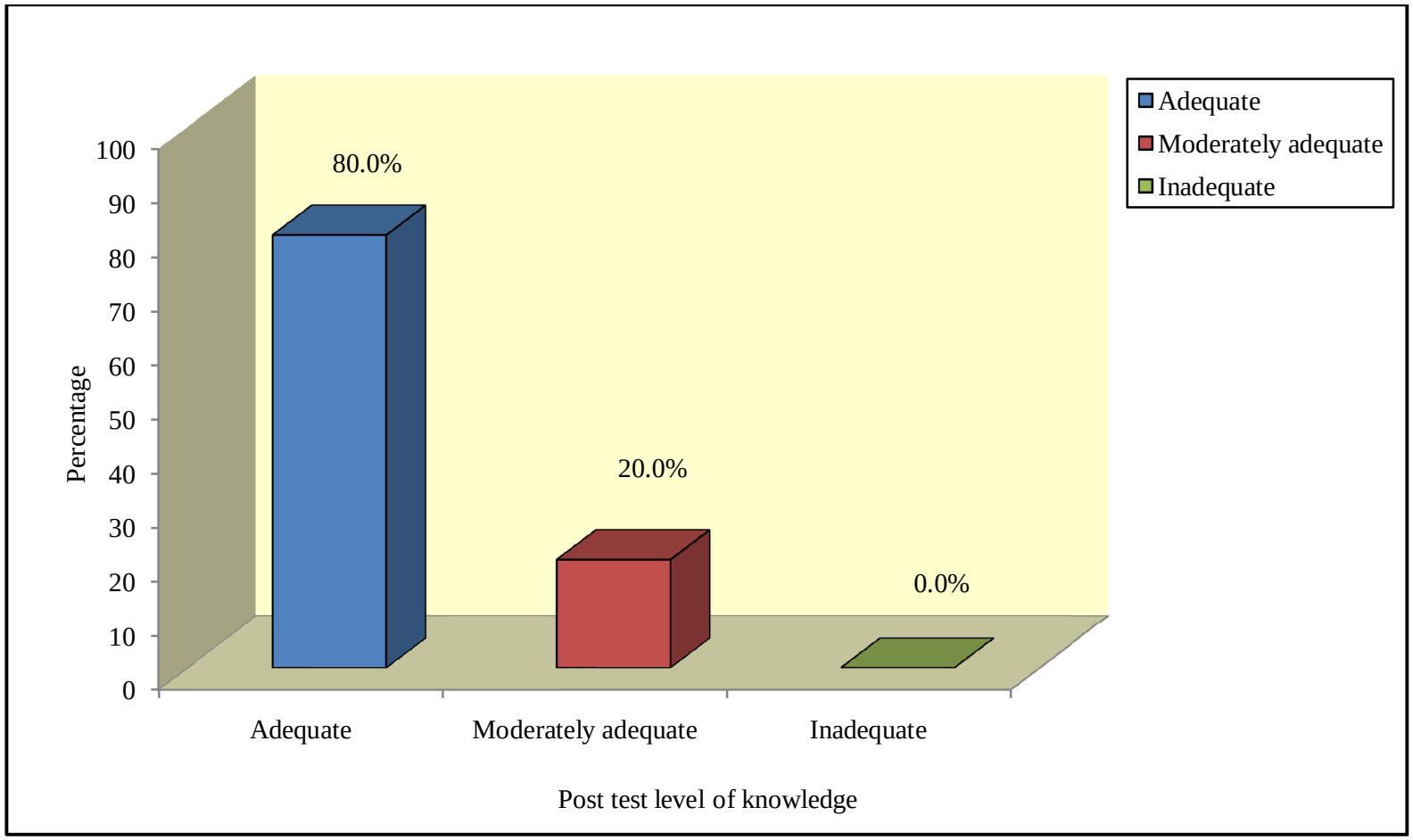

Fig. 15: Percentage distribution of post test level of knowledge regarding Renal Rehabilitation Among patients undergoing Haemodialysis

Table 6: Mean and percentage distribution of post test knowledge regarding components of Renal Rehabilitation among patients undergoing Haemodialysis.

Components of Renal Rehabilitation	Post test Knowledge Score	
	Mean	**Percentage**
Education	17.80	89.0
Exercise	12.87	85.8
Encouragement	4.13	82.6
Employment	4.00	80.0

Table 6 shows the mean and percentage distribution of pre test knowledge regarding components of Renal Rehabilitation among patients undergoing Haemodialysis. It reveals that, with regard to components of Renal Rehabilitation the patients had 89.0% of knowledge score about education, 85.8% of knowledge score about exercise, 82.6% of knowledge score about encouragement and 80.0% of knowledge score about employment.

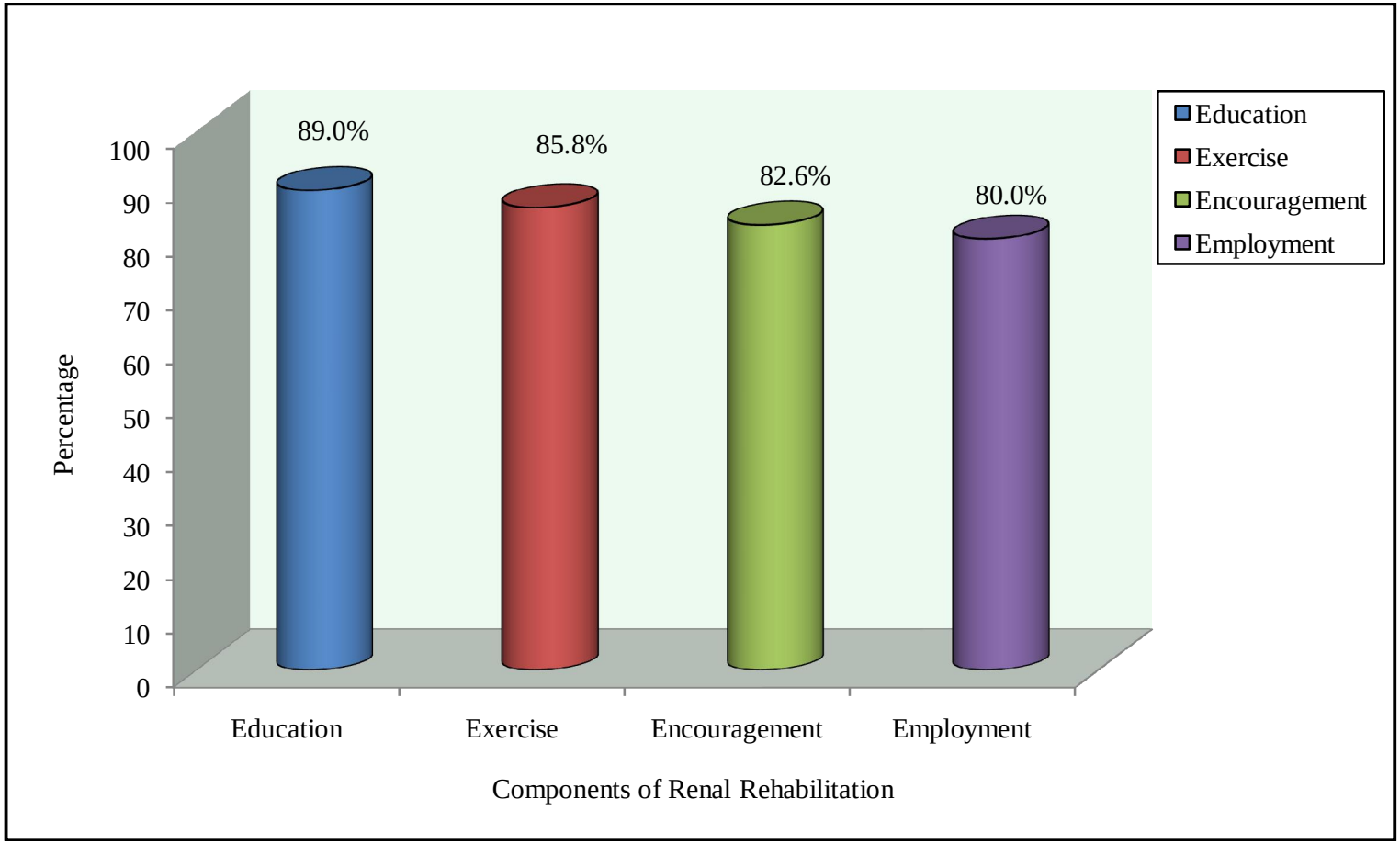

Fig. 16: Percentage distribution of post test knowledge regarding components of Renal Rehabilitation among patients undergoing Haemodialysis

SECTION – D

Table 7: Comparison of frequency and percentage distribution of pre test and post test level of knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis.

N=30

Level of Knowledge	Pre test		Post test	
	Frequency	**Percentage**	**Frequency**	**Percentage**
Inadequate	19	63.3	0	0.0
Moderately adequate	11	36.7	6	20.0
Adequate	0	0.0	24	80.0

Table 7 depicts the comparison of frequency and percentage distribution of pre test and post test level of knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis. With regard to level of knowledge, 19(63.3%) patients had inadequate knowledge in pre test regarding Renal Rehabilitation but no one had inadequate knowledge in post test. 11(36.7%) patients had moderately adequate knowledge in pre test, only 6(20%) patients had moderately adequate knowledge in post test. None of the patients had adequate knowledge in pre test but 24(80%) patients had adequate knowledge in post test regarding Renal Rehabilitation.

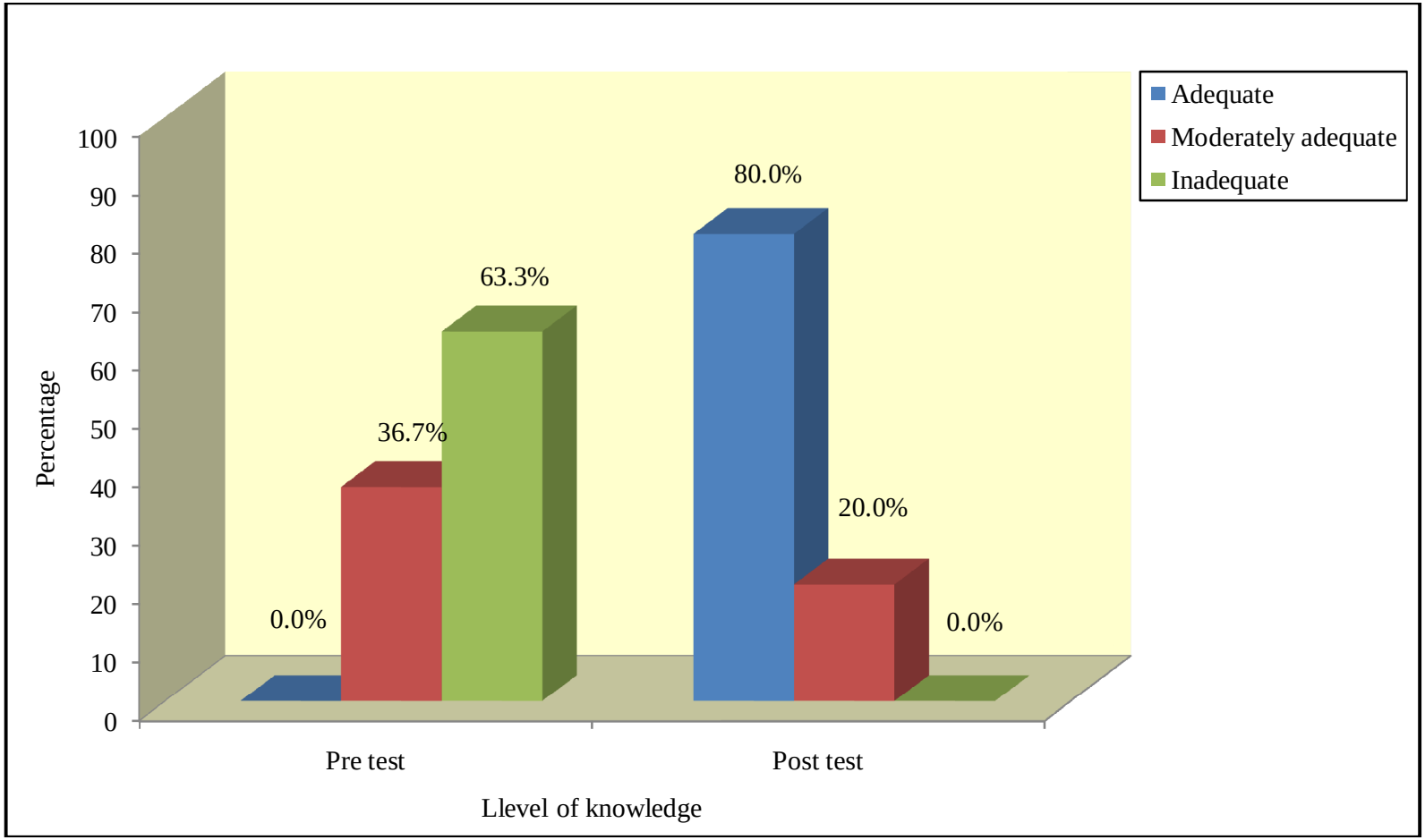

Fig. 17: Comparison of pre test and post test level of knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis

Table 8: Comparison of mean and percentage distribution of pre test and post test knowledge regarding components of Renal Rehabilitation among patients undergoing Haemodialysis.

Components of Renal Rehabilitation	Knowledge Score			
	Pre test		Post test	
	Mean	Percentage	Mean	Percentage
Education	11.27	56.4	17.80	89.0
Exercise	6.67	44.5	12.87	85.8
Encouragement	2.70	54.0	4.13	82.6
Employment	2.00	40.0	4.00	80.0

Table 8 depicts the comparison of mean and percentage distribution of pre test and post test knowledge regarding components of Renal Rehabilitation among patients undergoing Haemodialysis. It reveals that, with regard to the education knowledge score, it was markedly increased from 56.4% in the pre test to 89.0% in the post test. Considering the exercises knowledge score, it was significantly increased from 44.5% in the pre test to 85.8% in the post test. Related to encouragement score, it was markedly increased from 54.0% in the pre test to 82.6% in the post test. In accordance with employment score it was significantly increased from 40.0% in the pre test to 80.0% in the post test regarding Renal Rehabilitation.

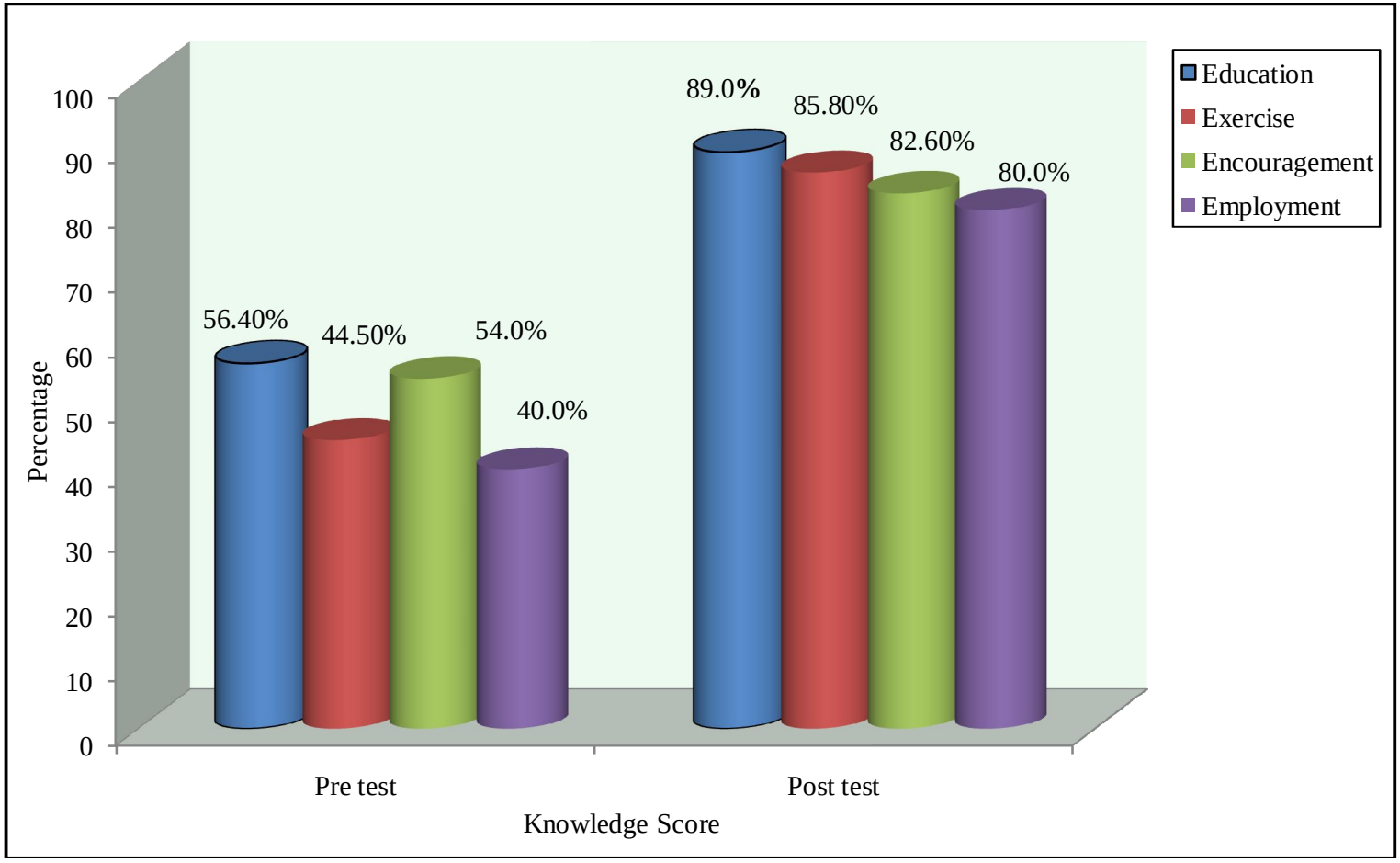

Fig. 18: Comparison of pre test and post test knowledge regarding components of Renal Rehabilitation among patients undergoing Haemodialysis

SECTION – E

Table 9: Effectiveness of IEC package on knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis.

Level of Knowledge	Percentage	Knowledge gain
Pre test	52.1	34.1
Post test	86.2	

Table 9 represents the effectiveness of the IEC package on knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis. After administration of IEC package regarding Renal Rehabilitation the level of knowledge was markedly increased from 52.1% in pre test to 86.2% in post test. The percentage of knowledge gain was 34.1%.Which indicates the effectiveness of IEC package on knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis.

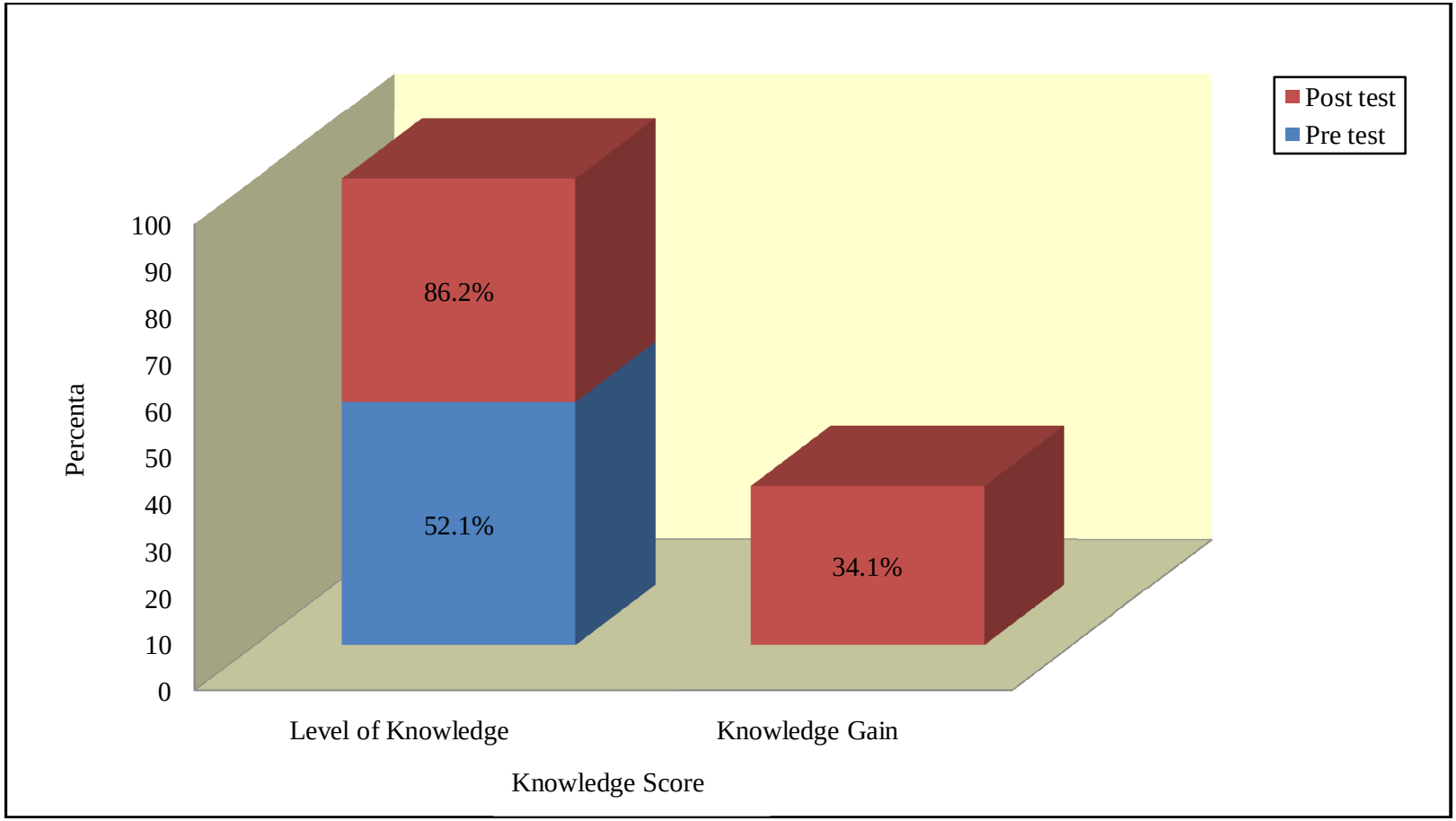

Fig. 19: Effectiveness of IEC package on knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis

Table 10: Effectiveness of IEC package on knowledge regarding components of Renal Rehabilitation among patients undergoing Haemodialysis.

Components of Renal Rehabilitation	Knowledge Score		Percentage of Knowledge Gain
	Pre test	Post test	
Education	56.4	89.0	32.6
Exercise	44.5	85.8	41.3
Encouragement	54.0	82.6	28.6
Employment	40.0	80.0	40.0

Table 10 represents the effectiveness of IEC package on knowledge regarding components of Renal Rehabilitation among patients undergoing Haemodialysis It illustrate that, after revealing the information regarding Renal Rehabilitation the knowledge score on education was markedly increased from 56.4% in pre test to 89.0% in post test, the calculated knowledge gain was 32.6%. Similarly, after exposing the patient about the aspects of Renal Rehabilitation the knowledge score on exercise was significantly increased from 44.5% in the pre test to 85.8% in the post test, the calculated knowledge gain was 41.3%. The knowledge score on encouragement was rose substantially from 54.0% in the pre test to 82.6% in the post test, the calculated knowledge gain was only 28.6% and the knowledge score on employment was 40.0% in the pre test, it was considerably increased to 80.0% in post test after divulging about IEC package regarding Renal Rehabilitation among patients undergoing Haemodialysis, the calculated knowledge gain was 40.0%.

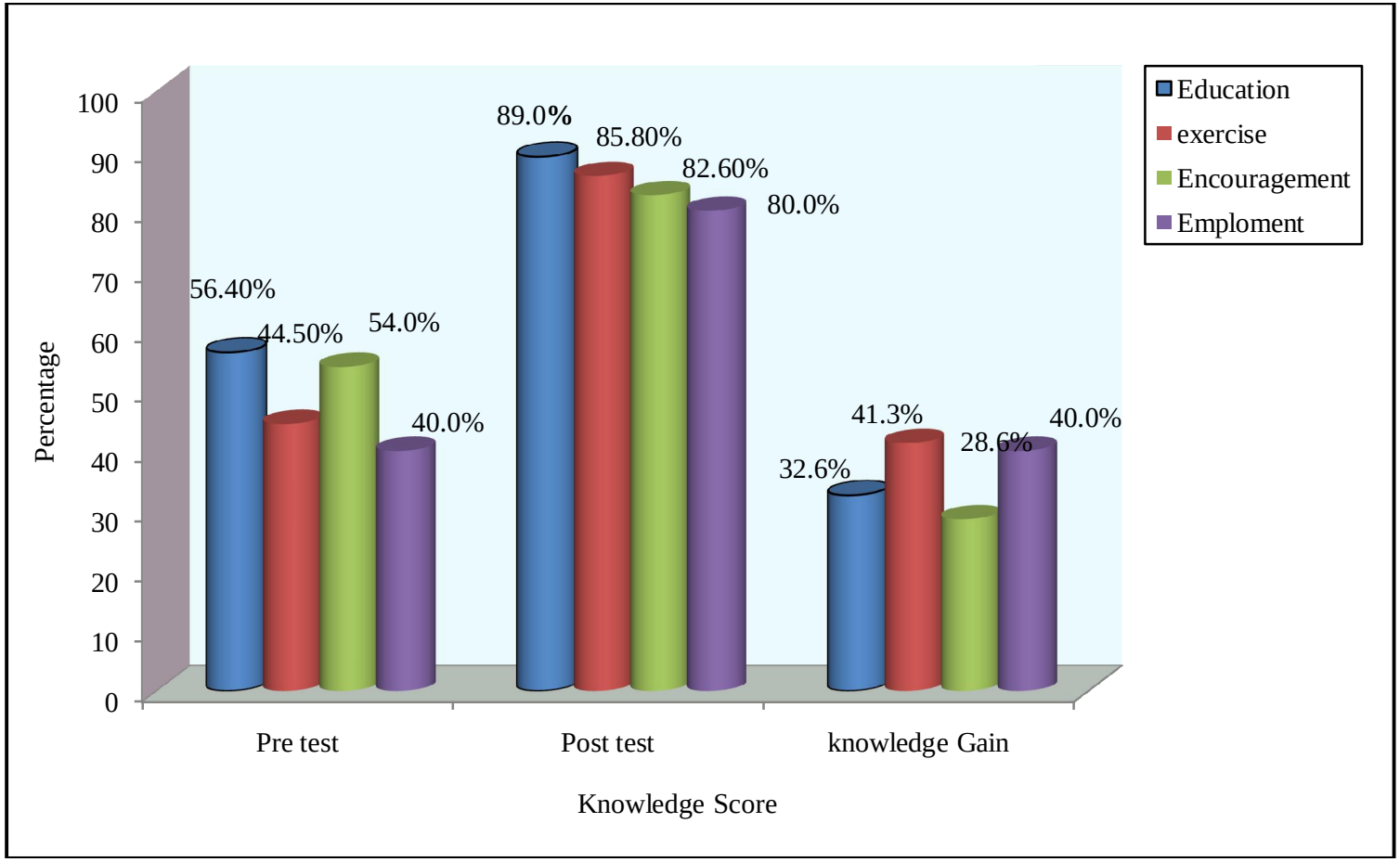

Fig. 20: Effectiveness of IEC package on knowledge regarding components of Renal Rehabilitation among patients undergoing Haemodialysis

SECTION – F

Table 11: Comparison of mean and standard deviation of pre test and post test Level of knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis.

N=30

Level of Knowledge	Mean	Standard Deviation	Student's dependent 't' test
Pre test	23.43	6.02	14.01***
Post test	38.80	5.63	

***p<0.001

Table 11 shows the comparison of mean and standard deviation of pre test and post test level of knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis. It revealed that the mean knowledge score was markedly increased from 23.43 in the pre test to 38.80 in the post test with gradual decrease in standard deviation from 6.02 in the pre test to 5.63 in the post test. The difference between pre test and post test mean knowledge score regarding Renal Rehabilitation was large. The calculated student's dependent 't' test value of 14.01 was highly significant at p<0.001 level. It indicates the effectiveness of IEC package on knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis.

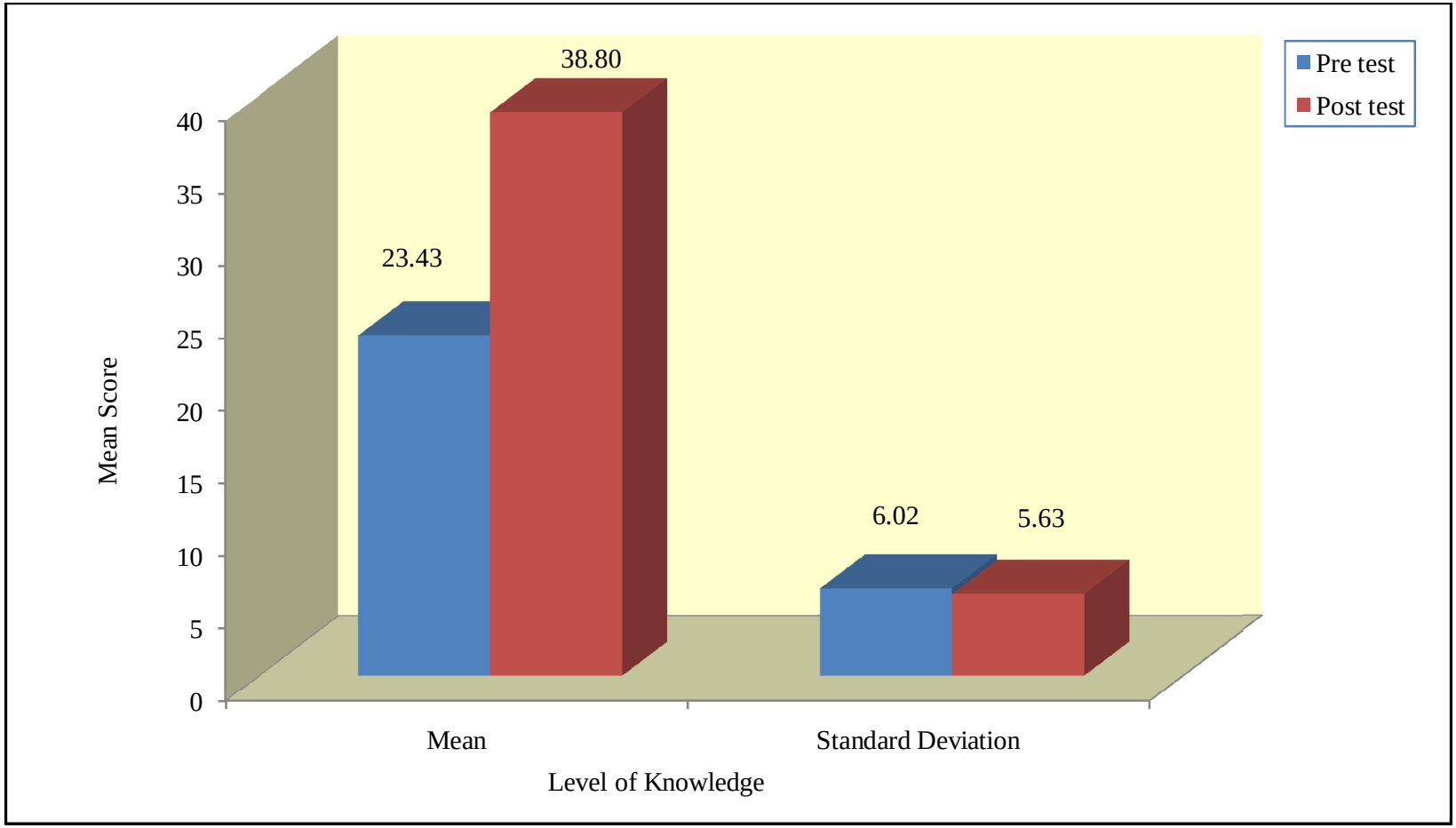

Fig. 21: Comparison of mean and standard deviation of the pre test and post test level of knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis

Table 12: Comparison of mean and standard deviation of pre test and post test knowledge regarding components of Renal Rehabilitation among patients undergoing Haemodialysis.

Components of Renal Rehabilitation	Knowledge Score				Student's dependent 't 'test
	Pre test		Post test		
	Mean	Standard Deviation	Mean	Standard Deviation	
Education	11.27	2.83	17.80	2.02	11.48***
Exercise	6.67	1.37	12.87	2.81	13.10***
Encouragement	2.70	1.47	4.13	1.17	4.80***
Employment	2.00	1.46	4.00	1.02	7.26***

***p<0.001

Table 12 shows the comparison of mean and standard deviation of pre test and post test knowledge regarding components of Renal Rehabilitation among patients undergoing Haemodialysis. The education mean score was substantially increased from 11.27 in the pre test to 17.80 in the post test with slow change in standard deviation from 2.83 in the pre test to 2.02 in the post test. Considering the exercises mean score it was significantly increased from 6.67 in the pre test to 12.87 in the post test with gradual increase in standard deviation from 1.37 in the pre test to 2.81 in the post test. Related to encouragement mean score it was significantly increased from 2.70 in the pre test to 4.13 in the post test with slight decrease in standard deviation from 1.47 in the pre test to 1.17 in the post test. In accordance with employment mean score it was significantly increased from 2.00 in the pre test to 4.00 in the post test with steadily decline in standard deviation from 1.46 in the pre test to 1.02 in the post test. The calculated student's dependent 't' test value of 11.48, 13.10, 4.80 and 7.26 were highly significant at $p<0.001$ level. It revealed the effectiveness of IEC package regarding Renal Rehabilitation.

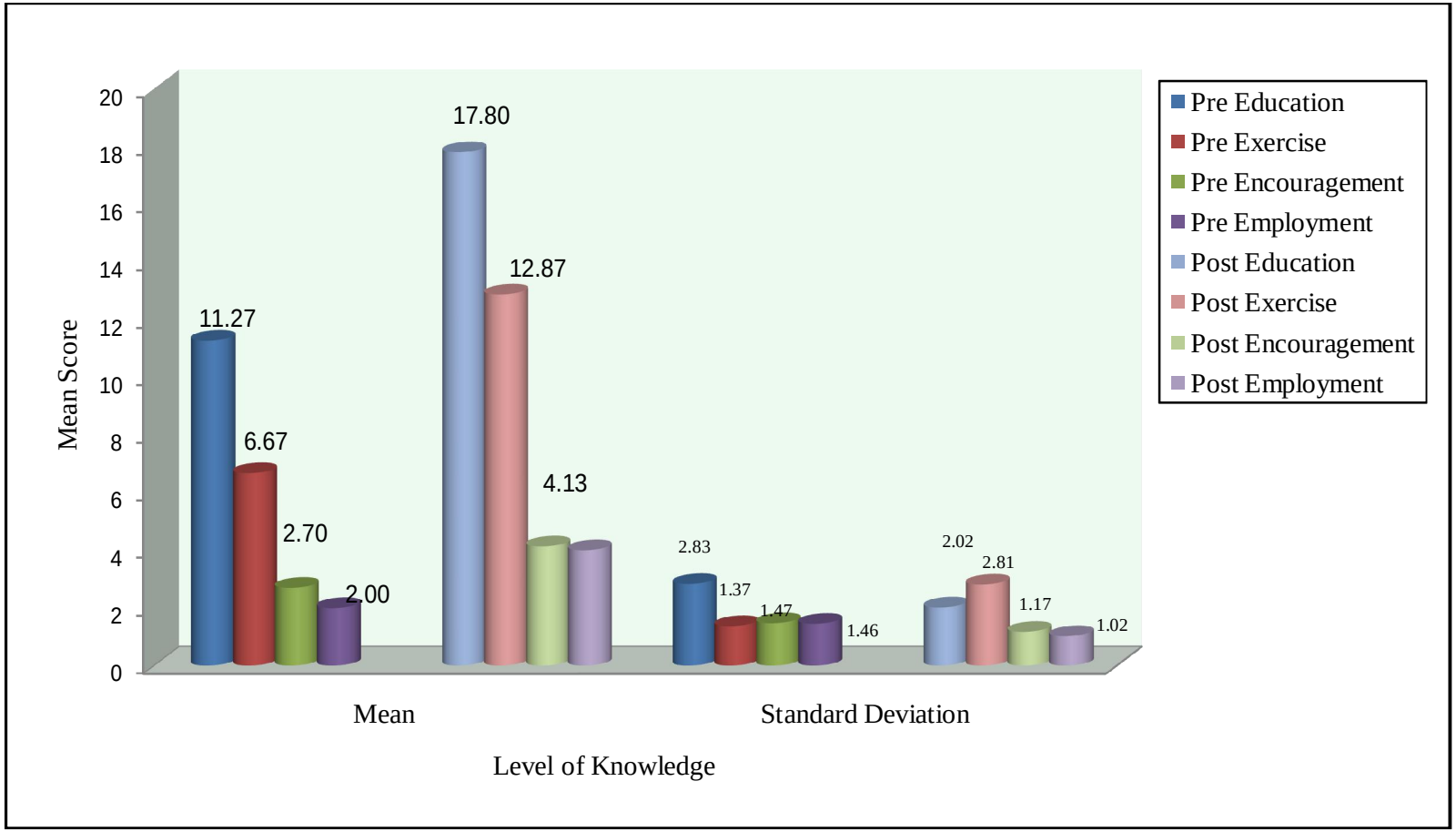

Fig. 22: Comparison of mean and standard deviation of pre test and post test knowledge regarding components of Renal Rehabilitation among patients undergoing Haemodialysis

SECTION – G

Table 13: Association of pre test level of knowledge regarding Renal Rehabilitation with the personal variables of patients undergoing Haemodialysis.

N=30

S. No	Personal Variables	Pre test level of knowledge				Chi square test χ^2
		Inadequate		Moderate		
		n	%	n	%	
1.	**Age in years**					
	≤50	9	60.0	6	40.0	$\chi^2 = 0.14$
	>50	10	66.7	5	33.3	df=1
						NS
2.	**Gender**					
	Male	17	65.4	9	34.6	$\chi^2 = 0.35$
	Female	2	50.0	2	50.0	df=1
						NS
3.	**Education**					
	Higher Secondary	3	60.0	2	40.0	$\chi^2 = 0.03$
	Graduate	16	64.0	9	36.0	df=1
						NS
4.	**Marital Status**					
	Married	14	58.3	10	41.7	$\chi^2 = 0.44$
	Unmarried	5	83.3	1	16.7	df=1
						NS
5.	**Occupation**					
	Employed	6	60.0	4	40.0	$\chi^2 = 0.07$
	Others	13	65.0	7	35.0	df=1
						NS
6.	**Monthly Income**					
	≤8000	7	70.0	3	30.0	$\chi^2 = 0.28$
	>8000	12	60.0	8	40.0	df=1
						NS
7.	**Place of Residence**					
	Rural	2	28.6	5	71.4	$\chi^2 = 2.99$
	Urban	17	73.9	6	26.1	df=1
						NS

NS- Non Significant

Table 13 depicts the association of pre test level of knowledge regarding Renal Rehabilitation with the personal variables of patients undergoing Haemodialysis. There was no significant association found with the personal variables.

Table 14: Association of pre test level of knowledge regarding Renal Rehabilitation with the clinical variables of patients undergoing Haemodialysis.

N=30

S. No	Clinical Variables	Pretest level of knowledge				Chi square test χ^2
		Inadequate		Moderate		
		n	%	n	%	
1.	**Co Morbidity**					
	CD/DM/hypertension	7	58.3	5	41.7	$\chi^2 = 0.21$
	Hypertension	12	66.7	6	33.3	df=1
						NS
2.	**Frequency of Dialysis per week**					
	Twice	3	100.0	0	0.0	$\chi^2 = 0.57$
	Thrice	16	59.3	11	40.7	df=1
						NS
3.	**Physical Activity**					
	Heavy/ moderate	13	59.1	9	40.9	$\chi^2 = 0.13$
	Sedentary	6	75.0	2	25.0	df=1
						NS

NS- Non Significant

Table 14 depicts the association of post test level of knowledge regarding Renal Rehabilitation with the clinical variables of patients undergoing Haemodialysis. The analysis revealed that there was no significant association found with the clinical variables.

Table 15: Association of post test level of knowledge regarding Renal Rehabilitation with the personal variables of patients undergoing Haemodialysis.

N=30

S. No	Personal Variables	Posttest level of knowledge				Chi square test χ^2
		Moderate		Adequate		
		n	%	n	%	
1.	**Age in years**					
	≤50	0	0.0	15	100.0	**χ^2 = 7.60**
	>50	6	40.0	9	60.0	**df=1**
						S**
2.	**Gender**					
	Male	5	19.2	21	80.8	χ^2 = 0.35
	Female	1	25.0	3	75.0	df=1
						NS
3.	**Education**					
	Higher Secondary	3	60.0	2	40.0	**χ^2 = 6.00**
	Graduate	3	12.0	22	88.0	**df=1**
						S**
4.	**Marital Status**					
	Married	6	25.0	18	75.0	χ^2 = 0.44
	Unmarried	0	0.0	6	100.0	df=1
						NS
5.	**Occupation**					
	Employed	1	10.0	9	90.0	χ^2 = 0.23
	Others	5	25.0	15	75.0	df=1
						NS
6.	**Monthly Income**					
	≤8000	5	50.0	5	50.0	**χ^2 = 8.440**
	>8000	1	5.0	19	95.0	**df=1**
						S**
7.	**Place of Residence**					
	Rural	4	57.1	3	42.9	**χ^2 = 7.87**
	Urban	2	8.7	21	91.3	**df=1**
						S**

NS- Non Significant, S – Significant, **p<0.01

Table 15 depicts the association of post test level of knowledge regarding Renal Rehabilitation with the personal variable of patients undergoing Haemodialysis. The chi square value of 7.60 showed that there was a significant association between the age of the patient undergoing Haemodialysis and post test level of knowledge after administration of IEC package regarding Renal Rehabilitation at the level of $p<0.01$. The chi square value of 6.00 showed that there was a significant association between the education of the patient undergoing Haemodialysis and post test level of knowledge after administration of IEC package at the level of $p<0.01$.

The chi square value of 8.440 showed that there was a significant association between the monthly income of the patient undergoing Haemodialysis and post test level of knowledge after administration of IEC package at the level of $p<0.01$. The chi square value of 7.87 showed that there was a significant association between the place of residence of the patient undergoing Haemodialysis and post test level of knowledge after administration of IEC package regarding Renal Rehabilitation among patients undergoing Haemodialysis at the level of $p<0.01$ and there was no significant association found with other personal variables like gender, marital status and occupation.

Table 16: Association of post test level of knowledge regarding Renal Rehabilitation with the clinical variables of patients undergoing Haemodialysis.

N=30

S. No	Clinical Variables	Pretest level of knowledge				Chi square test χ^2
		Moderate		Adequate		
		n	%	n	%	
1.	**Co Morbidity**					
	CD/DM/hypertension	2	16.7	10	83.3	$\chi^2 = 0.13$
	Hypertension	4	22.2	14	77.8	df=1
						NS
2.	**Frequency of Dialysis per week**					
	Twice	1	33.3	2	66.7	$\chi^2 = 0.37$
	Thrice	5	18.5	22	81.5	df=1
						NS
3.	**Physical Activity**					
	Heavy/ moderate	4	18.2	18	81.8	$\chi^2 = 0.17$
	Sedentary	2	25.0	6	75.0	df=1
						NS

NS- Non Significant

Table 16 depicts the association of post test level of knowledge regarding Renal Rehabilitation with the clinical variables of patients undergoing Haemodialysis. The analysis revealed that there was no significant association found with the clinical variables.

CHAPTER-V

DISCUSSION

This chapter deals with the discussion of the results obtained from the statistical analysis. This study aimed to assess the effectiveness of information education communication package on knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis in dialysis unit of Apollo Hospitals at Chennai.

The hypothesis formulated was that there was no significant association between IEC package on knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis. The review of literature included the related studies which provided a strong foundation for the study including the basis for conceptual framework and formation of tool.

The conceptual framework for this study was developed based on Imogene king Goal Attainment theory. The research design used in this study was pre experimental one group pre test and post test design. It was carried out with 30 those who fulfilled the inclusion criteria. Purposive sampling technique was used to select the samples among the target population.

The tool was distributed to the samples to assess the pre test level of knowledge regarding Renal Rehabilitation. IEC package was given to the patients undergoing Haemodialysis with the duration of 20-30 minutes. The post test was conducted after one week by using the same tool.

The data collected were analyzed using descriptive and inferential statistics. The frequency and percentage distribution of personal variables of patients undergoing Haemodialysis shows that with respect to the age of patients with ESRD, most of the patients 10(33.3%) were in the age group of greater than 60 years and only 3(10.0%) of them were in the age group of 41-50 years.

With respect to sex of patients with ESRD, the majority of the patients 26(86.7%) were males however 4(13.3%) patients were females. With regard to educational status of

patients with ESRD, the majority of the patients 25(83.3%) were graduates and 5(16.7%) patients had higher secondary education. Considering marital status of patients with ESRD, the majority of the patients 24(80.0%) were married and 6(20.0%) patients were unmarried. In regard to occupation of patients with ESRD, the majority of the patients 17(56.7%) were in the category of others, 10(33.3%) patients were employed and only 3(10.0%) patients were unemployed.

In accordance with monthly income of patients with ESRD, the majority of the patients 20(66.7%) were getting more than Rs 8,000, 4(13.3%) patients were getting Rs. 4,001 to 6,000 and only 1(3.3%) patients getting Rs 6,001 to 8,000. Related to place of residence of patients with ESRD, the majority of the patients 23(76.7%) were coming from urban area and 7(23.3%) of them were coming from rural area. Distribution of clinical variables of patients undergoing Haemodialysis of the study showed that the majority of the patients 18(60.0%) were having hypertension,6(20.0%) patients were having diabetes and hypertension and only 1(3.3%) patient had cardiac diseases in regard to co-morbidity of patients undergoing Haemodialysis.

With regard to frequency of dialysis of patients with ESRD, majority of patients 27(90.0%) were getting dialysis weekly thrice and 3(10.0%) patients were getting dialysis weekly twice. With respect to physical activity of patients with ESRD, 19(63.3%) patients were having moderate physical activity however 3(10.0%) patients were having heavy physical activity.

The first objective was to assess the pre test level of knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis.

With regard to the pre test level of knowledge regarding Renal Rehabilitation, 19(63.3%) patients undergoing Haemodialysis had inadequate knowledge, 11(36.7%) patients had moderately adequate knowledge and none of them had adequate knowledge regarding Renal Rehabilitation.

With respect to the pre test knowledge regarding components of Renal Rehabilitation. Patient undergoing Haemodialysis had 56.4% of knowledge score about education, 44.5% of knowledge score about exercise, 54.0% of knowledge score about encouragement and 40.0% of knowledge score about employment.

The second objective was to assess the post test level of knowledge on Renal Rehabilitation among patients undergoing Haemodialysis.

Considering the post test level of knowledge, 24(80%) patients undergoing Haemodialysis had adequate knowledge, 6(20%) patients had moderately adequate knowledge and none of them had inadequate knowledge regarding Renal Rehabilitation.

With respect to the post test knowledge regarding components of Renal Rehabilitation. Patient undergoing Haemodialysis had 89.0% of knowledge score about education, 85.8% of knowledge score about exercise, 82.6% of knowledge score about encouragement and 80.0% of knowledge score about employment.

The study is correlating with King K, et al., (2008). Who had done a retrospective study regarding patient education program on chronic kidney disease to examine the level of knowledge about CKD, preference for treatment, feeling of hope and fear before and after the educational intervention. There were 1,844 patients participated in this study. The study concluded that after the educational intervention, patients scored significantly higher knowledge then they scored on the pre test.

The third objective was to evaluate the effectiveness of information education communication package on knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis.

In comparison of mean and standard deviation of pre test and post test level of knowledge regarding Renal Rehabilitation, the mean knowledge score was markedly increased from 23.43 in the pre test to 38.80 in the post test with gradual decrease in standard deviation from 6.02 in the pre test to 5.63 in the post test. The difference between pre test and post test mean knowledge score regarding Renal Rehabilitation was large. The calculated student's dependent 't' test value of 14.01 was highly significant at $p<0.001$ level. It indicates the effectiveness of IEC package on knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis. .

In comparison of mean and standard deviation of pre test and post test knowledge regarding components of Renal Rehabilitation among patients undergoing Haemodialysis. The difference of pre test and post test mean knowledge score among the components was large. The calculated student's dependent 't' test value of 11.48 about education, 13.10

about exercise, 4.80 about encouragement and 7.26 about employment were highly significant at $p<0.001$ level. It revealed the effectiveness of IEC package on knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis.

The study finding is correlating with Klang B, et al., (1998). Who had done an experimental study on effects of pre dialysis patient education on functioning and well being in uraemic patients. There were 28 uraemic patients participated in this study they were divided in to two groups 14 were in experimental group and remaining 14 were in control group. The programme consisted of four group sessions with the following themes such as renal disease and dietary restriction, active renal replacement therapy, physical exercise and the impact of chronic renal failure on economy, family and social life. The study concluded that the experimental group that participated in a pre dialysis patient education programme showed better functional and emotional well being than the non educational comparison group.

Hypothesis formulated was there was no significant relationship between IEC package on knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis. But in the post test, the mean knowledge score value of 38.80 was greater than the pre test mean knowledge score value of 23.43, which indicated statistically significant. So the null hypothesis was rejected and research hypothesis was accepted as there was significant relationship between IEC package and level of knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis.

The fourth objective was to associate the pre test and post test level of knowledge regarding Renal Rehabilitation with the selected demographic variables of patients undergoing Haemodialysis.

In the pre test level of knowledge there was no significant association found with the personal variables and the clinical variables. But in the post test there were significant associations found. The chi square value of 7.60 showed that there was a significant association between the age of the patient undergoing Haemodialysis and post test level of knowledge after administration of IEC package regarding Renal Rehabilitation at the level of $p<0.01$. The chi square value of 6.00 showed that there was a significant association between the education of the patient undergoing Haemodialysis and post test level of knowledge at the level of $p<0.01$. The chi square value of 8.440 showed that there was a significant association between the monthly

income of the patient undergoing Haemodialysis and post test level of knowledge at the level of $p<0.01$. The chi square value of 7.87 showed that there was a significant association between the place of residence of the patient undergoing Haemodialysis and post test level of knowledge after administration of IEC package regarding Renal Rehabilitation among patients undergoing Haemodialysis at the level of $p<0.01$. There was no significant association found with other personal variables like gender, marital status occupation and the clinical variables.

So the IEC package was effective on knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis.

CHAPTER VI

SUMMARY, CONCLUSION, NURSING IMPLICATIONS, RECOMMENDATIONS AND LIMITATIONS

The heart of research project lies in reporting the findings of the study. This is the most creative and demanding part of the study. This chapter gives a brief account of the present study including the conclusion drawn from the findings, suggestions for the study, nursing implications, recommendations and limitation of the study. The present study was intended to know the level of knowledge among End Stage Renal Disease patient.

SUMMARY

End stage renal disease (ESRD) patients undergoing Haemodialysis had much stress and have to make adjustments in their lives. To optimize health and improve quality of life, rehabilitation of renal patients is important. The Renal Rehabilitation is called “4E’s” including Education, Exercise, Encouragement and Employment Renal Rehabilitation program including pre dialysis education and in center demonstration in the dialysis unit. This specific combination of supportive information education communication packages not tested so far. Empirical evidence in support of this innovative nursing strategy would help re-engineering the Renal Rehabilitation in India. Considering this, a study was conducted to find the effectiveness of information education communication package on knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis in dialysis unit of Apollo Hospitals at Chennai.

The objectives of the study were,

- To assess the pre test level of knowledge on Renal Rehabilitation among patients undergoing Haemodialysis.
- To assess the post test level of knowledge on Renal Rehabilitation among patients undergoing Haemodialysis.

- To determine the effectiveness of information education communication package on knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis.
- To associate the pre test and post test level of knowledge regarding Renal Rehabilitation with the selected demographic variables of patients undergoing Haemodialysis.

The focus of the study was to evaluate the effectiveness of IEC package on knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis. The hypothesis formulated was there was no significant relationship between IEC package and level of knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis. The review of literature included the related studies which provided a strong foundation for the study including the basis for conceptual framework and formation of tool.

The conceptual framework for this study was developed based on Imogene king Goal Attainment theory. The research design used in this study was pre experimental one group pre test and post test design. It was carried out with 30 samples those who fulfilled the inclusion criteria. Purposive sampling technique was used to select the samples among the target population. The tool used for data collection was prepared by the researcher.

The data collection tools were validated and reliability was established. After the pilot study the data collection for the main study was done. The tool was distributed to the sample to assess the pre test level of knowledge regarding Renal Rehabilitation. IEC package was given to the patients undergoing Haemodialysis with the duration of 20-30 minutes. The post test was conducted after one week by using the same tool to assess the knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis.

The data collected were analyzed by using descriptive and inferential statistics. Frequency and percentage distribution was used to determine the demographic variables and level of knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis. Mean and standard deviation was used to determine the knowledge of patient undergoing Haemodialysis. Student dependent ‘t’ test was used to assess the effectiveness of IEC package on knowledge regarding Renal Rehabilitation. Yates

corrected chi square test was used to analyze the association of demographic variables with level of knowledge on Renal Rehabilitation.

The major findings in the distribution of personal variables of patients undergoing Haemodialysis showed that, with respect to the age of patients with ESRD, most of the patients 10(33.3%) were in the age group of greater than 60 years and only 3(10.0%) patients were in the age group of 41-50 years. With respect to sex of patients with ESRD, the majority of the patients 26(86.7%) were males and 4(13.3%) patients were females.

With regard to educational status of patients with ESRD, the majority of the patients 25(83.3%) were graduates. Considering marital status of patients with ESRD, the majority of the patients 24(80.0%) were married and 6(20.0%) patients were unmarried. In regard to occupation of patients with ESRD, the majority of the patients 17(56.7%) were in the category of others however only 3(10.0%) patients were unemployed.

In accordance with monthly income of patients with ESRD, the majority of the patients 20(66.7%) were getting more than Rs 8,000, 4(13.3%) however only 1(3.3%) patients getting between Rs 6,001 to 8,000. Related to place of residence of patients with ESRD, the majority of the patients 23(76.7%) were coming from urban area.

The major findings in the distribution of clinical variables of patients undergoing Haemodialysis of the study showed that the majority of the patients 18(60.0%) were having hypertension. With regard to frequency of dialysis of patients with ESRD, most of the patients 27(90.0%) were getting dialysis weekly thrice. With respect to physical activity of patients with ESRD, most of the patients 19(63.3% were having moderate physical activity.

Analysis revealed that the mean knowledge score was markedly increased from 23.43 in the pre test to 38.80 in the post test with gradual decrease in standard deviation from 6.02 in the pre test to 5.63 in the post test. The difference between pre test and post test mean knowledge score regarding Renal Rehabilitation was large. The calculated student's dependent 't' test value of 14.01 was highly significant at $p<0.001$ level. It indicates the effectiveness of IEC package on knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis.

CONCLUSION

The present study assessed the effectiveness IEC package on knowledge regarding Renal Rehabilitation. The study findings revealed that there was a significant improvement in the level of knowledge after providing IEC package regarding Renal Rehabilitation. Based on the statistical findings, it is evident that provision of such kind of IEC package motivates the ESRD patients and helps them to acquire knowledge regarding Renal Rehabilitation. Therefore IEC package was very important to meet the needs of the patients undergoing Haemodialysis for their well being.

NURSING IMPLICATIONS

The findings of the study have implications in various areas of nursing service, nursing education, nursing administration and nursing research.

Nursing practice

Rehabilitation of dialysis patients was an original goal of the Nursing care. In End stage Renal Disease (ESRD) program, there was a growing recognition that the key to the continued wellness of these patients' lies in helping them realize their optimum level of functioning. Benefits associated with successful rehabilitation include a better quality of life, reduced health care costs, and fewer demands for support from care providers.

Success of a rehabilitation program depends to a large extent on the efforts of a team composed of health care professionals such as nurses, physicians, pharmacists and dietitians, social service providers such as social workers and vocational counselors and most important the patients themselves.

Nursing education

The nurse education must aim to enable student nurses gain skill required to be able to practice the psychosocial principles in setup where highly technological interventions are carried out early education about renal disease, its treatments and the

potential to live long and productively can aid in overall adjustment and decision making for people on dialysis.

More specifically, learning about topics including kidney failure, treatment choices, medications and the renal diet can help dialysis patients maintain a sense of control, a factor linked to improved adherence and life satisfaction.

Encouragement, especially from families and dialysis staff, can increase patients' autonomy, control and participation in treatment. Patients who are encouraged to learn about their treatment have better outcomes and improved quality of life. Such patients may take more responsibility for things they can control, including exercise, remaining actively engaged in life and sticking to the renal meal plan. The support patients received from their families and dialysis staff was a major factor in promoting employment.

Nursing administration

Nursing administration can formulate policies that will include all patients to be actually involved in the IEC package program in their respective hospital and college. Nursing administration can utilize the IEC package while conducting in service education program for directing and motivating the patient towards acquiring knowledge on Renal Rehabilitation.

Nurse administrator have more responsibility as supervisor on creating knowledge among End Stage Renal Disease Patients regarding Renal Rehabilitation by free distribution of booklets and handouts regularly in the inpatient and outpatient department of hospital, health clinics in urban and rural.

Nursing research

Nurse researchers should work on psychosocial assessment techniques and develop various assessment scales for Haemodialysis patients and their caregivers.

RECOMMENDATIONS

- Effectiveness of this intervention on a longer duration, probably 6 months and 1 year can be carried out.
- The same study can be replicated with peritoneal dialysis patients.
- The same study can be replicated with large sample size.
- There can be a comparative study between patients with hemodialysis and peritoneal dialysis.

LIMITATIONS

- The size of the sample was limited to 30 only
- The past experiences of patients with dialysis also influence this study result
- Patients would have received information from other health team members.
- The study finding is limited to population undergoing maintenance Haemodialysis in dialysis unit of Apollo Hospitals at Chennai, India only.

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APPENDIX-A

INTERVIEW SCHEDULE ON KNOWLEDGE REGARDING RENAL REHABILITATION

PART - I

DEMOGRAPHIC VARIABLES

Personal variables

1. Age in years
    a) 21 - 30
    b) 31 - 40
    c) 41 – 50
    d) 51 - 60
    e) >61

2. Gender
    a) Male
    b) Female

3. Educational status
    a) Primary
    b) Higher secondary
    c) Graduate

4. Marital status
    a) Married
    b) Unmarried
    c) Divorcee
    d) Widow

5. Occupation
    a) Employed
    b) Unemployed
    c) Others

6. Monthly Income
    a) <2000
    b) 2001 - 4000
    c) 4001 - 6000
    d) 6001 - 8000
    e) >8001

7. Place of residence
    a) Rural
    b) Urban

Clinical variables

8. Presence of co morbid chronic illness
    a) Cardiac disease
    b) Diabetes mellitus
    c) Hypertension
    d) Diabetes mellitus and Hypertension

9. Frequency of dialysis per week
    a) Once
    b) Twice

10. Physical activity
    a) Heavy
    b) Moderate
    c) Sedentary \

PART II

Assessment of knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis

I.Education

General information about End Stage Renal Disease (ESRD)

1. Most of the individual have
   a) Only one kidney
   b) Two kidneys
   c) Three kidneys
   d) Four Kidneys

2. The shape of the kidney is
   a) Round Shape
   b) Flat Shape
   c) Bean Shape
   d) Shapeless

3. The weight of the each kidney is
   a) 100 g
   b) 150 g
   c) 250 g
   d) 350 g

4. The urine formation takes place in the
   a) Kidney
   b) Ureter
   c) Bladder
   d) Urethra

5. The incidence of chronic renal failure is highest in
    a) Teenage
    b) Middle age
    c) Childhood
    d) Old age

6. One of the reason for end stage Renal disease is
    a) Goitre
    b) Diabetes Mellitus and hypertension
    c) Cancer
    d) Peptic Ulcer

7. As your kidney function deteriorates, you might develop any of the following symptoms
    a) Poor intelligence
    b) Paralysis
    c) Tiredness and swollen ankles or shortness of breath
    d) Chest pain

8. In ESRD patient itching occurs due to
    a) Dehydration
    b) Calcification of the tissue
    c) Changes of the body fluids
    d) Deposition of urea in the skin

9. The normal level of sr. creatinine level
    a) 0.5 – 1.5 mg/dl
    b) 3.5 – 5.5 mg/dl
    c) 5.5 – 10.5 mg/dl
    d) > 10 .5mg/dl

10. The permanent method of treatment for ESRD is
    a) Haemodialysis
    b) Transplantation
    c) Drug therapy
    d) Peritoneal dialysis

Treatment and complication

11. One of the best treatment for ESRD is
    a) Drug
    b) Dialysis
    c) Diet control
    d) Fluid management

12. The haemodialyzer is used to
    a) Increase urinary output
    b) Decrease s.calcium level
    c) Improve circulation
    d) Remove excess fluid & waste products.

13. General guideline for restriction of fluid in ESRD is
    a) 1200 ml + previous day urine output
    b) 100 ml + previous day urine output
    c) 1300 ml + previous day urine output
    d) 500 ml + previous day urine output

14. The proteins should be restricted in ESRD up to
    a) 0.6 – 0.8 g /kg / day
    b) 2.5 – 3.0 g /kg / day
    c) 5.0 – 6.0 g /kg / day
    d) 7.5 – 8.5 g /kg / day

15. Fruits should be avoided by ESRD patients are
    a) Yellow Plantain
    b) Apple / grapes
    c) Lemon, watermelon
    d) Orange, Guava

16. In End stage renal disease the blood pressure is controlled by?
    a) Not taking related medication
    b) Salt Restricted diet
    c) Uncontrolled fluid intake
    d) Regular sleeping pattern

17. In end stage renal disease anemia can be rectified by
    a) Vitamin
    b) Calcium
    c) Iron supplementation
    d) Protein diet

18. Iron injection. can be taken in
    a) Weekly once
    b) Daily
    c) Once a year
    d) Twice a Year

19. Bone fracture in end stage renal disease can be prevented by taking
    a) Vitamin A
    b) Vitamin D and Calcium
    c) Iron
    d) Protein diet

20. Edema is prevented by
    a) Seeking medical aid
    b) Taking drugs
    c) Restricting the fluid
    d) Ignore

II.Exercise

Care of AV Fistula/ Graft

21. How long a newly formed wrist fistula takes to mature or enlarge?
    a) 6 weeks
    b) 10 weeks
    c) 11 weeks
    d) 12 weeks

22. When a newly formed graft can be used?
    a) After 1 week
    b) After 2 weeks
    c) After 3 weeks
    d) After 4 weeks

23. Which one of the following complication often occurs with fistula/graft
    a) Infection
    b) Clotting
    c) Wound
    d) Neuropathy

24. How do you prolong your life of the fistula/graft?
    a) Continue to do squeeze ball exercise
    b) Do not allow anyone to take blood
    c) Do not allow anyone to check BP
    d) Check thrill every day

25. Which one of the following activity ESRD patients avoid in the AV Fistula hand?
    a) Eating
    b) Cooking
    c) Heavy lifting
    d) Washing

General renal exercise

26. What is the need of exercise?
    a) To increase BP
    b) To increase risk of Heart Attack
    c) To become depressed
    d) To make your muscle stronger

27. Who can perform renal exercise?
    a) Every person on dialysis
    b) Only CRT patient
    c) Only normal human being
    d) Those who underwent Renal transplantation

28. What kind of exercise the renal patient needs?
    a) Knee exercise
    b) Flexibility exercise & strengthening exercise
    c) Fore arm exercise
    d) Hip exercise

29. How exercises help an ESRD patient?
    a) Control food habit
    b) Makes mood change
    c) Changes the fat & cholesterol content in blood
    d) Reduce body weight

30. Which one of the following is the most suitable place for ESRD patient to exercise?
    a) Market side
    b) Work place
    c) Vocation site
    d) Home

31. Who can teach and recommend exercises to ESRD patients?
    a) Social worker
    b) Occupational therapist
    c) Counselor
    d) Physical therapist

32. What is mean by strengthening exercise using
    a) Hand exercise
    b) Non resistance exercise
    c) Resistance to make work harder
    d) Weight lifting

33. What is mean by flexibility exercise?
    a) Heavy movements
    b) Gentle muscle stretching
    c) Slow movements
    d) Gentle muscle stretching & slow movements

34. How often an ESRD patient will exercise?
    a) Twice a day
    b) Every other day
    c) Should be done daily
    d) Every alternative day

.

35. How long the ESRD patient should exercise every day?
    a) 30 mins.
    b) 15 mins.
    c) 45 mins.
    d) 1 hour

III.Encouragement

36. What is the role of social worker in renal rehabilitation?
    a) Help you not to share feelings
    b) Help you find stranger
    c) Keep an open mind for solution
    d) Help you family not to help you

37. How dietitians can helps an ESRD patient?
    a) Prays for you
    b) Plays along with you
    c) Makes good choice when you eat out (Restaurant)
    d) Cooks for you

38. How can fellow dialysis patient help you?
    a) Stays along with you
    b) Handles dialysis machine
    c) Mismatch your friendship
    d) Shares ideas & solution

39. What are the activities of National kidney foundation?

a) Offers newsletter
b) Offers bulletin
c) Provides pre dialysis education & helps to find jobs.
d) Offers magazines

40. What are the treatment options available for end stage renal disease?

a) Shunts
b) Renal transplantation
c) Conventional therapy
d) Conservative management

IV.Employment

41. How does ESRD treatment affect a person's ability to work?

a) Feel hyperactive
b) Energetic
c) Fatigue due to dialysis treatment
d) Feel depressed

42. How can business accommodate people with ESRD?

a) Creating part time positions
b) Making the work place not readily accessible
c) Not at all restricting the job.
d) No job sharing

43. What are the employee's common myths about working with kidney disease workers with disabilities produce the output of

a) More

b) Less

c) Normal

d) Subnormal

44. What are the responsibilities to an employer in employing an ESRD patient?

a) More stress

b) No breaks

c) Extra Works

d) Flexible scheduling of work

45. What are the dialysis schedules available for working ESRD patients?

a) Continuous cycling hemodialysis

b) Automated hemodialysis

c) Home dialysis

d) Nocturnal peritoneal dialysis

KEYS FOR THE TOOL

QUESTION NUMBER	ANSWER	QUESTION NUMBER	ANSWER
1	b	24	a
2	c	25	c
3	b	26	d
4	a	27	a
5	b	28	b
6	b	29	c
7	c	30	d
8	d	31	d
9	a	32	c
10	b	33	d
11	b	34	c
12	d	35	a
13	d	36	c
14	a	37	c
15	a	38	d
16	b	39	c
17	c	40	b
18	a	41	c
19	b	42	a
20	c	43	b
21	a	44	d
22	b	45	c
23	b		

PART III

SKELETON PLAN

INFORMATION EDUCATION COMMUNICATION PACKAGE REGARDING RENAL REHABILITATION

S.NO	BEHAVIOURAL OBJECTIVE	CONTENT	TEACHER'S ACTIVITY	LEARNER'S ACTIVITY	AV AIDS
1.	The patient will be able to explain about ESRD	**EDUCATION ON ESRD** • Definition of Renal Rehabilitation • Review of the normal structure and functions of Kidney • Definition of End stage renal disease • The incidence of End stage renal disease • Causes of End stage renal disease • Symptoms of End stage renal disease • Diagnosis of End stage renal disease • Treatment modalities for End stage renal disease	Introducing the topic	Active listening	Video clips and Booklet
2.	The patient will be able to demonstrate care of AV fistula/graft and renal exercise	**EXERCISE** • Care of AV fistula/graft • Renal exercise	Demonstrating	Listening and observing	Hand out
3.	The patient will be able to list out the ways to get encouragement	**ENCOURAGEMENT** • List of ways to get encouragement	Explaining	Participating	Video clips
4.	The patient will be able to enlist the measures to adjust with employment	**EMPLOYMENT** • Measures to adjust with employment	Explaining	Papating	Video clips

APPENDIX – B

Letter seeking consent of the subject for the participation in the research study

I am voluntarily willing to participate in the study conducted by Mr.H.Harigobu, on a study to assess the effectiveness of information, education and communication package on knowledge regarding Renal Rehabilitation among patients undergoing haemodialysis in dialysis unit of Apollo hospitals at Chennai. I will also co-operate with the researcher in providing necessary information. I was explained that the information provided would be kept in confidential and used only for above mentioned study purpose.

Signature of the investigator
(H. Harigobu)

Place: Chennai.
Date: 03.06.11

Signature of the participant
Chennai Apollo Hospitals

Place: Chennai
Date: 03.06.11

Apollo Hospitals
CHENNAI
touching lives

APPENDIX - C

15/06/2011

TO WHOMSOEVER IT MAY CONCERN

This is to certify that the dissertation titled ***"A Study To Assess The Effectiveness Of Information, Education And Communication Package On Knowledge Regarding Renal Rehabilitation Among Haemodialysis Patients In Dialysis Unit of Apollo Hospitals, Chennai"*** was carried out by **Mr.Harigobu.H, M.Sc (N) 2nd year** student of **Madha College of Nursing, Kundrathur, Chennai-69** during the period of 01.06.2011 to 15.06.2011 at our hospital, as part of his academic curriculum.

We wish him all the very best for a bright future.

APOLLO HOSPITALS • CHENNAI-6 • SINCE

Bonnika Saraswathi.K
Asst. Manager-Training & Development

Dept. of Nephrology
Dr. K.C. Prakash, MD DNB
Head Dept of Nephorology

25 Years
Apollo Hospitals
touching lives

June 14, 2011

BONAFIDE CERTIFICATE

This is to certify that this dissertation titled " A STUDY TO ASSESS THE EFFECTIVENESS OF INFORMATION, EDUCATION AND COMMUNICATION PACKAGE ON KNOWLEDGE REGARDING RENAL REHABILITATION AMONG PATIENTS UNDERGOING HAEMODIALYSIS IN DIALYSIS UNIT OF APOLLO HOSPITALS AT CHENNAI" is based on the work carried out under my supervision by **Mr. Harigobu, H.M.Sc., (N) II year student of Madha College of Nursing, Kundrathur, Chennai 69** during the period of 01.06.2011 to 15.06.2011.

Research Supervisor

With designation, date and seal

Dr. K.C. PRAKASH, M.D., DNB.
Head Dept. of Nephrology
APOLLO HOSPITAL
Chennai - 600 006
Regn. No. 73261

MADHA COLLEGE OF NURSING

(Approved by Govt. of Tamil Nadu & Affiliated to the Tamil Nadu Dr. M.G.R. Medical University,
Recognised by the Tamil Nadu Nurses and Midwives Council &
Approved by Indian Nursing Council, New Delhi)

Madha Nagar, Somangalam Road, Kundrathur, Chennai - 600 069. Phone : 2478 0736 / 34 / 32, Fax : 2478 0798
E - mail : mcon98@gmail.com Website : www.madhagroups.org

B. Tamilarasi, M.Sc., M.Phil., (Ph.D.),
Principal

25.03.2011

BS

Mam please it approved by DMS

K. MERVIN
DGM-HR
APOLLO HOSPITALS ENTERPRISE LTD
12 APR 2011
NO 21, GREAMS LANE,
MADRAS 600 006

From

The Principal,
Madha College of Nursing,
Kunrathur,
Chennai – 69.

To

Dr. K. C. Prakash,
Chief Consultant Nephrologist,
Apollo Hospitals,
Chennai.

Respected Sir,

Sub: MCON- Permission to carry out project – Apollo Hospitals – Mr. Harigobu.H, M.Sc. (N) Student – Requisition – regarding.

This is to bring to your kind information that our M.Sc. Nursing students have to carry out a project during their course of study as a partial fulfillment of M.Sc. Nursing curriculum.

In regard to this, we would be highly grateful to you if you could accord permission for Mr. Harigobu. H, I year M. Sc. (N) student of our college to carryout his project work in Apollo Hospitals, during the period of one month (01.06.11 – 30.06.11).The title of the project is "A study to assess the effectiveness of Information, Education and Communication package on knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis in dialysis unit of Apollo Hospitals at Chennai"

Kindly permit him to do the project. I assure you that his study will not interfere with the morale of patients and health care providers. The anonymity of the information will be kept confidential.

Thanking you,

Sincerely,

Bala, Approved by DMS starting from 01/June/11.

Dear (Admin) No objection but to get permission from DMS.

(Dr. Bhanu) 25.3.11

(Dr. K.C. Prakash) 7/4/11

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MADHANAGAR, KUNDRATHUR,
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APPENDIX-D

LIST OF EXPERTS FOR CONTENT VALIDITY

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Dr. S. Balasubramanian, M.D.,DNB.

Consultant Nephrologist,

Apollo Hospitals,

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Reg, No- 48424.

CERTIFICATION FOR CONTENT VALIDITY

This is to certify that the content and the tool to the statement of the problem **"A study to assess the effectiveness of Information, Education and Communication package on knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis in dialysis unit of Apollo Hospital at Chennai"** prepared by **Mr. Harigobu. H, M.Sc (N) I year** student currently pursuing her M.Sc (N) degree programme for the partial fulfillment of her dissertation at **Madha College of Nursing, Kunrathur, Chennai – 69** is found to be valid to the best of my knowledge.

28/03/2011

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Asst Professor.
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TO SERVE IS DIVINE

Dept. of Nephrology
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Head - Dept. of Nephrology

Apollo HOSPITALS
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CERTIFICATE FOR CONTENT VALIDITY

This is to certify that the content and the tool to the statement of the problem "**A study to assess the effectiveness of information, education and communication package on knowledge regarding Renal Rehabilitation among patients undergoing haemodialysis in dialysis unit of Apollo hospitals at Chennai"** prepared by **Mr. Harigobu . H , M.Sc (N) II year** student currently pursuing him M.Sc (N) degree programme for the partial fulfillment of his dissertation at **Madha College Of Nursing , Kundrathur, Chennai – 69** is found to be valid to best of my knowledge.

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APPENDIX-E

CERTIFICATE FOR ENGLISH EDITING

TO WHOME SO EVER IT MAY CONCERN

This is to certify that the dissertation "A study to assess the effectiveness of information education and communication package on knowledge regarding Renal Rehabilitation among patients undergoing Haemodialysis in dialysis unit of Apollo Hospitals at Chennai," prepared by Mr. Harigobu. H, II year M.Sc., Nursing, student of Madha College Of Nursing, Kundrathur, Chennai, is edited for English language appropriateness.

Name: P. Shanthi
PG Asst (English)

Signature: 7/2/12

Govt. Hr. Sec. School
Anakaputhur, Chennai -70.

INFORMATION

EDUCATION COMMUNICATION (IEC) PACKAGE

ON

RENAL REHABILITATION

GENERAL OBJECTIVE

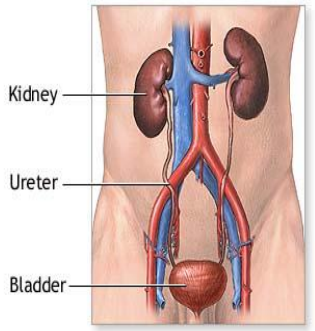
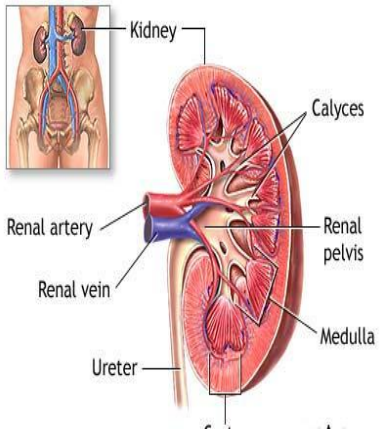
The patients should be able to acquire adequate knowledge regarding Renal Rehabilitation, develop desirable attitude and to apply the skill while taking care of themselves.

BEHAVIOURAL OBJECTIVE

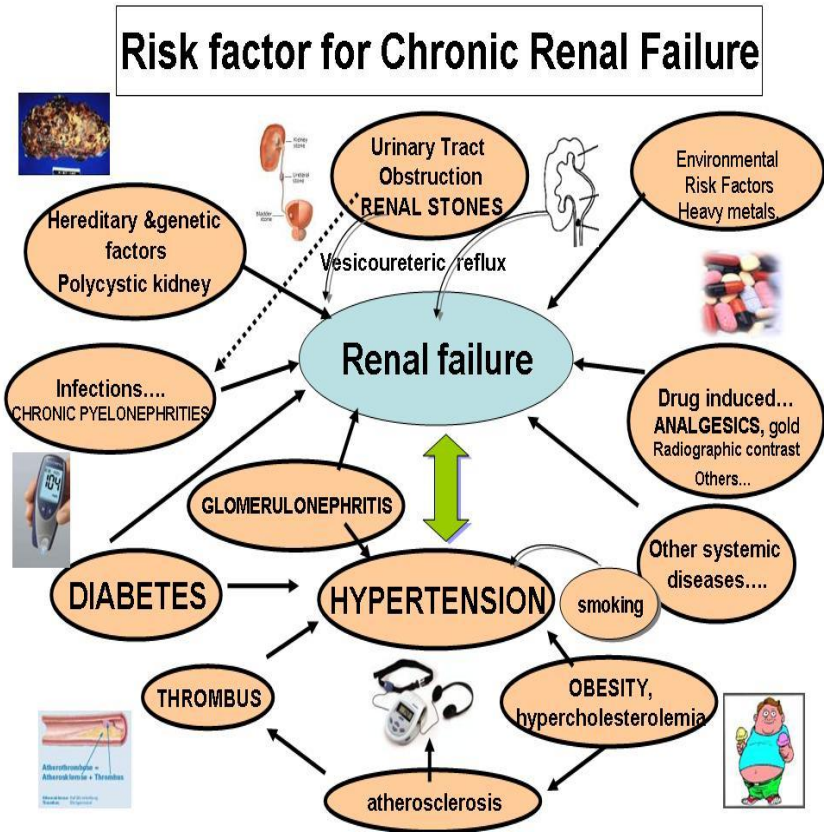
At the end of the session the patients will be able to

- define Renal Rehabilitation
- review the normal structure and functions of Kidney
- define End stage renal disease
- state the incidence of End stage renal disease
- list out the causes of End stage renal disease
- enlist the symptoms of End stage renal disease
- name the tests helpful in diagnosis of End stage renal disease
- discuss the treatment modalities for End stage renal disease
- demonstrate care of AV fistula/graft and renal exercise
- list out the ways to get encouragement
- enlist the measures to adjust with employment

S. NO	BEHAVIOURAL OBJECTIVES	CONTENT	TEACHER'S ACTIVITY	LEARNER'S ACTIVITY	AV AIDS
1	The patient will be able to define Renal Rehabilitation	**Definition for Renal Rehabilitation** Rehabilitation is defined as restoring a person to a normal life by means of physical, mental, social and vocational aspects. Renal rehabilitation is defined broadly, in terms of optimal functioning for individual patients and restoration to productive activities not simply employment. To foster renal rehabilitation and guide program development, the Life Options Rehabilitation Advisory Council (LORAC) identified five core principles, called the "5 E's" **Encouragement, Education, Exercise, Employment, and Evaluation.**	Introducing the topic	Active listening	Video clips
2	The patient will be able to review normal structure and functions of	**Normal Kidney** Most people have two **kidneys**, which is at the back of the abdomen (behind the liver and intestines) on either side of the spine. Each is 11-14 cms (5-6 inches) long and weigh about 150 grams is	Explaining	Visualizing and listening	Video clips

	Kidney	bean-shaped. From the kidneys, the **collecting systems** funnel the urine into tubes (**ureters**) goes down to the **bladder.** The connection to the outside is along the **urethra**.   Each kidney is joined to the largest artery in the body, the **aorta**, by a short **renal artery**. The kidneys have a huge blood supply, one fifth (20%) of normal blood flow leaving the heart. **Functions of the Kidney** 1. remove toxic waste products 2. remove excess water and salts 3. control blood pressure			

		4. produce erythropoietin (**epo** for short) which stimulates red cell production from the bone marrow - you get anaemic without this 5. help to keep calcium and phosphate in balance for healthy bones 6. maintain the blood in a neutral (non-acid) state			
3	The patient will be able to define End stage renal disease	**Definition of End stage renal disease** End stage renal disease (ESRD) is the complete, or almost complete failure of the kidneys to function. The kidneys can no longer remove wastes, concentrate urine, and regulate many other important body functions. Patients who have reached this stage need dialysis or a kidney transplant.	Explaining	Visualizing and listening	Video clips
4	The patient will be able to state the incidence of End stage renal disease	**Incidence** • Chronic kidney disease is a growing health problem. A report by the Centers for Disease Control (CDC) determined that 16.8% of all adults above the age of 20 years have chronic kidney disease. • Kidney disease is more common among Hispanic, African American, Asian or Pacific Islander and Native American people	Explaining	Visualizing and listening	Video clips

5	The patient will be able to list out the causes of End stage renal disease	**Causes for End stage renal disease**  • Diabetes and high blood pressure • Problems with the arteries • Birth defects of the kidneys (such as polycystic kidney disease)	Explaining	Visualizing and listening	Video clips

		• Some pain medications and other drugs • Certain toxic chemicals • Autoimmune disorders (such as systemic lupus erythematosus and scleroderma) • Injury or trauma • Glomerulonephritis • Kidney stones and infection • Reflux nephropathy (in which the kidneys are damaged by the backward flow of urine into the kidneys) • Other kidney diseases			
6	The patient will be able to enlist the symptoms of End stage renal disease	**Symptoms of End stage renal disease** Symptoms may include: • General ill feeling , tiredness and fatigue • Generalized itching (pruritus) due to deposition of urea in the skin • Dry skin • Headaches • Weight loss without trying • Loss of appetite • Nausea • Abnormally dark or light skin and changes in nails	Explaining	Visualizing and listening	Video clips

		• Bone pain
		• Brain and nervous system symptoms
		  o Drowsiness and confusion
		  o Problems concentrating or thinking
		  o Numbness in the hands, feet, or other areas
		  o Muscle twitching or cramps
		• Breath odor and shortness of breath
		• Easy bruising, nosebleeds, or blood in the stool
		• Excessive thirst
		• Frequent hiccups
		• Low level of sexual interest and impotence
		• Menstrual periods stop (amenorrhea)
		• Sleep problems, such as insomnia, restless leg syndrome or obstructive sleep apnea
		• Swelling of the feet and hands (edema)
		• Vomiting, especially in the morning			

7	The patient will be able to name the exams and tests helpful in diagnosis of End	**Tests to diagnose End stage renal disease** • A blood pressure measurement • A spot check for protein or albumin in the urine • A calculation of glomerular filtration rate (GFR) based on a serum creatinine measurement.(S.Cr 0.5- 1.5 mg /dl)	Explaining	Visualizing and listening	Video clips

	stage renal disease	Measuring urea nitrogen in the blood provides additional information			
8	The patient will be able to discuss the treatment modalities for End stage renal diseased	**Treatment modalities for End stage renal disease** There is no cure for chronic kidney disease. The four goals of therapy are as follows: 1. To slow the progression of disease 2. To treat underlying causes and contributing factors 3. To treat complications of disease 4. To replace lost kidney function • Controlling blood pressure by salt restriction is the key to delaying further kidney damage. • Angiotensin-converting enzyme (ACE) inhibitors or angiotensin receptor blockers (ARBs) are used most often. • The goal is to keep blood pressure at or below 130/80 mmHg 	Explaining	Visualizing and listening	Video clips

		Other treatments may include • Special medicines called phosphate binders, to help prevent phosphorous levels from becoming too high • Treatment for anemia, such as extra iron in the diet, iron pills, special shots of a medicine called erythropoietin (weekly once), and blood transfusions • Extra calcium and vitamin Dprevents bone fracture (always talk to your doctor before taking) • Edema is prevented by restricting the fluid • Permanent method of treatement is renal transplantation **Other tips for protecting the kidneys and preventing heart disease and stroke** • Do not smoke. • Eat meals that are low in fat and cholesterol • Get regular exercise (talk to your doctor or nurse before starting). 			

		• Take drugs to lower your cholesterol, if necessary. • Keep your blood sugar under control. **Diet - Changing the Diet** • You may need to limit fluids (500 + previous day 24 hour urine output). • Your health care provider may recommend a low-protein diet.I(0.6 – 0.8 g /kg/day) • You may have to restrict salt, potassium, phosphorous, and other electrolytes. • It is important to get enough calories when you are losing weight. • People with reduced kidney function need to be aware that some parts of a normal diet may speed their kidney failure. • **Protein** Protein is important to the body. It helps the body repair muscles and fight disease. Protein comes mostly from meat but can also be found in eggs, milk, nuts, beans, and other foods. Healthy kidneys take wastes out of the blood but leave in the protein. Impaired kidneys may fail to separate the protein from the wastes.			

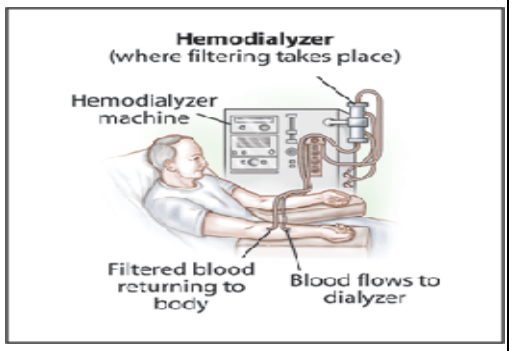
		• **Cholesterol** Another problem that may be associated with kidney failure is high cholesterol. High levels of cholesterol in the blood may result from a high-fat diet. Cholesterol can build up on the inside walls of blood vessels. The buildup makes pumping blood through the vessels harder for the heart and can cause heart attacks and strokes. • **Sodium** Sodium is a chemical found in salt and other foods. Sodium in the diet may raise a person's blood pressure, so people with kidney failure should limit foods that contain high levels of sodium. High-sodium foods include canned or processed foods like frozen dinner, dry fish, papatam and pickles. • **Potassium** Potassium is a mineral found naturally in many fruits and vegetables, such as oranges, potatoes, bananas, dried fruits, dried beans and peas, and nuts. Healthy kidneys measure potassium in the blood and remove excess amounts.			

Diseased kidneys may fail to remove excess potassium. With very poor kidney function, high potassium levels can affect the heart rhythm.

- **Not Smoking.**

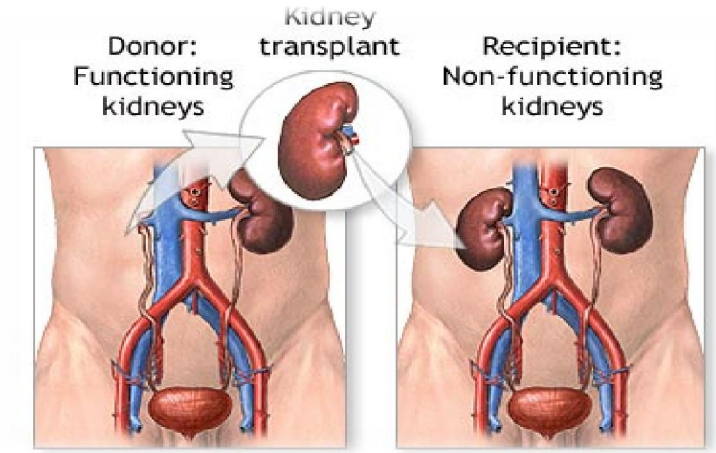
  Smoking not only increases the risk of kidney disease, but it also contributes to deaths from strokes and heart attacks in people with kidney failure.

Dialysis



The two major forms of dialysis are hemodialysis and peritoneal dialysis. Hemodialysis uses a special filter called a dialyzer that functions as an artificial kidney to clean a person's blood. During treatment, the blood travels through tubes into the dialyzer, which filters out wastes, extra salt, and extra water. Then the cleaned blood flows through another set of tubes back into the body. The hemodialysis

		machine monitors blood flow and removes wastes from the dialyzer. Hemodialysis is usually performed at a dialysis center three times per week for 3 to 4 hours. **Peritoneal Dialysis** In peritoneal dialysis, a fluid called dialysis solution is put into the abdomen. This fluid captures the waste products from a person's blood. After a few hours when the fluid is nearly saturated with wastes, the fluid is drained through a catheter. Then, a fresh bag of fluid is dripped into the abdomen to continue the cleansing process. Patients can perform peritoneal dialysis themselves. Patients using continuous ambulatory peritoneal dialysis (CAPD) change fluid four times a day. Another form of peritoneal dialysis, called continuous cycling peritoneal dialysis (CCPD), can be performed at night with a machine that drains and refills the abdomen automatically. **Transplantation** A donated kidney may come from an anonymous donor who has recently died (brain death) or from a living person, usually a blood relative. The kidney must be a good match for the patient's body. The patient will take special drugs to help trick the immune			

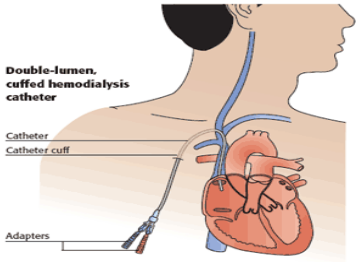
		system so it does not reject the transplanted kidney. Unless they are causing infection or high blood pressure, the diseased kidneys are left in place. Kidneys from living, related donors appear to be the best match for success, but kidneys from unrelated people also have a long survival rate. Patients approaching kidney failure should ask their doctor early about starting the process to receive a kidney transplant.  **Kidney transplantation** **Driving** Under most circumstances you may continue to drive, although we do suggest for the first two months of haemodialysis you do not drive immediately after your treatment.			

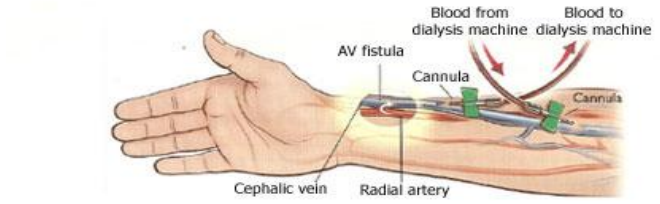
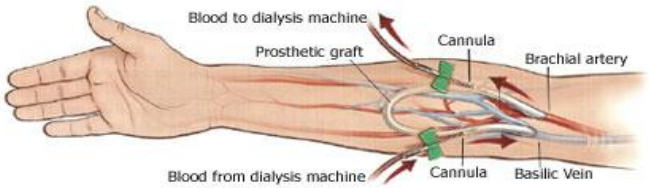
		Sex life You should be able to continue as normal, and we will certainly make every effort to ensure this is the case. Patients with kidney failure can have a full sexual relationship with their partner. However, some patients may feel tired or low in mood which may affect their sex drive. Medication and altered blood chemistry can also contribute to this. Female patients may also notice significant changes in their menstrual cycle. There are ways we can help you cope with sexual problems, so please try and discuss them with the medical staff or social work staff if you are in any way concerned. **Holidays** Holidays can be arranged some months before you intend to go. Patients on haemodialysis usually have to be on treatment for 6 months before they can be considered. If you are on peritoneal dialysis and wish to take a short break or a longer holiday, providing you are well, this is usually possible. Your supplies will be delivered to your destination as long as you give a little bit of notice. If you are on Haemodialysis it is more complicated. It depends on there being space in a unit where you are going, unless you are going to a dialysis holiday centre (yes there are some).			

		Smoking Smoking does damage your heart and lungs. You cannot afford the extra risk so you should try to stop. It is even more important for you to try to stop smoking if kidney transplantation is being considered. Smoking damages the blood vessels and this could affect the future success of a transplanted kidney. **Alcohol** Alcohol is quite permissible in certain forms but must be counted within your normal fluid allowance and diet. Ask for advice about this. **Vaccinations** • Hepatitis B vaccine • Hepatitis A vaccine • Pneumococcal polysaccharide vaccine (PPV) • Influenza vaccine • H1N1 (swine flu) vaccine **Other important measures that you can take include** • Carefully follow prescribed regimens to control your blood pressure and/or diabetes. • Stop smoking			

		• Lose excess weight In chronic kidney disease, several medications can be toxic to the kidneys and may need to be avoided or given in adjusted doses. Among over-the-counter medications, the following need to be avoided or used with caution. • Certain analgesics - Aspirin; nonsteroidal anti-inflammatory drugs (NSAIDs, such as ibuprofen [Motrin, for example]) • Fleets or phosphosoda enemas because of their high content of phosphorus • Laxatives and antacids containing magnesium and aluminum such as Milk of Magnesia and Mylanta • Ulcer medication H2-receptor antagonists - cimetidine (Tagamet), ranitidine (Zantac), (decreased dosage with kidney disease) • Decongestants like pseudoephedrine (Sudafed) especially if you have high blood pressure • Alka Seltzer, since this contains a lot of salt • Herbal medications If you have a condition such as diabetes, high blood pressure, or high cholesterol underlying your chronic kidney disease, take all medications as directed and see your healthcare provider as recommended for follow-up and monitoring.			

		Possible Complications
		• Anemia
		• Bleeding from the stomach or intestines
		• Bone, joint, and muscle pain
		• Brain dysfunction, confusion, and dementia
		• Changes in electrolyte levels
		• Changes in blood sugar (glucose)
		• Damage to nerves of the legs and arms
		• Fluid buildup around the lungs
		• Heart and blood vessel complications
		  o Congestive heart failure
		  o Coronary artery disease
		  o High blood pressure
		  o Pericarditis
		  o Stroke
		• Hepatitis B, hepatitis C, liver failure
		• Hyperparathyroidism
		• Increased risk of infections
		• Malnutrition
		• Phosphorous levels become too high
		• Potassium levels become too high
		• Seizures			

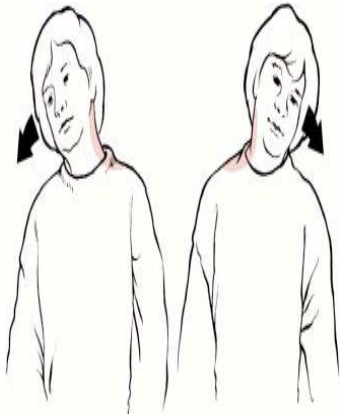
		• Skin dryness, itching/scratching, leading to skin infection • Weakening of the bones, fractures, joint disorders			
9	The patient will be able to demonstrate care of AV fistula/graft and renal exercise	**Arterio Venous Fistula(AV Fistula)** Fistulas formed at the elbow usually take approximately 8 weeks to mature (i.e the period necessary for the vein to enlarge and strengthen so that we can use it for haemodialysis). However, fistulas formed at the wrist usually take longer and can take anything up to 6weeks to mature depending on the individual.    **When can the fistula/graft be used?** Fistulas formed at the elbow usually take approximately 8 weeks to mature (ie the period necessary for the vein to enlarge and strengthen so that we can use it for haemodialysis).	Demonstrating	Listening and observing	Hand out

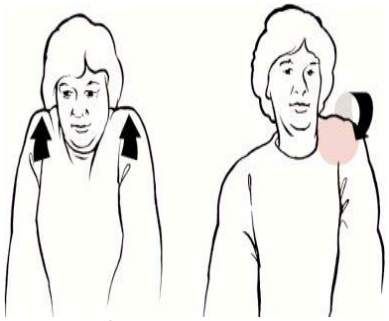
		However, fistulas formed at the wrist usually take longer and can take anything up to 6 weeks to mature depending on the individual. Grafts are often usable after about two weeks, owing to the fact that we do not need to wait for the vein to enlarge and strengthen. But again this can vary between patients.   **What complication can occur with fistulas and grafts?** • **Clotting -** there is a risk that your fistula/graft can clot off and stop working. This can occur immediately after theatre or at any time later. Surgeons or radiologists are sometimes able to declot or refashion the fistula/graft to start it working again. However, in some cases it will be necessary to create a new fistula.			

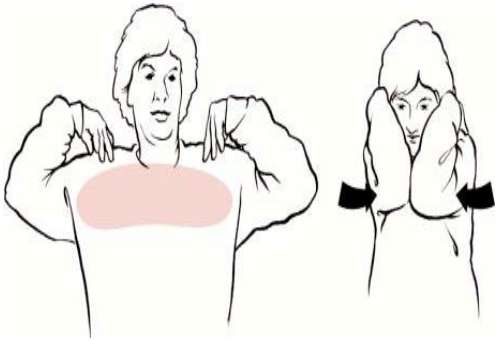
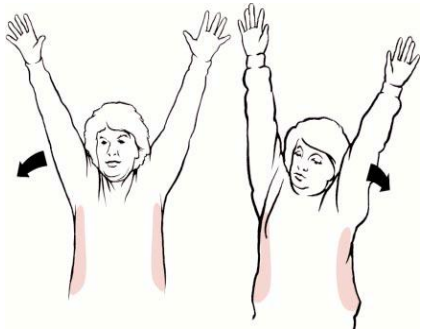
		• **Infection -** occasionally infections can occur in fistulas and grafts although grafts are at a higher risk of infection. The infection can usually be treated with antibiotics but in some cases, especially with grafts, the access may need to be removed and a new access formed. • **Steal Syndrome -** this condition occurs when a fistula takes away some of the blood supply to the hand. It can result in a painful or cold hand. A glove can be worn to relieve this. If it becomes troublesome, surgery may be required to tie off some part of your fistula, or the whole fistula/graft may need to be tied off or removed. • **Neuropathy -** a fistula/graft can also divert blood away from the nerves in the arm, which may cause a tingling sensation in the hand. In some cases it may cause sufficient pain to require the reversal of the fistula/ graft. **How do I prolong the life of my fistula/graft?** • Do not allow anyone to take blood, insert drips or take a blood pressure on your fistula/graft arm • Check your fistula/graft each day for a thrill/ bruit. Inform dialysis staff immediately if you cannot feel one (044-28296605)			

		• Continue to do your squeeze ball exercises  **Fistula Exercise** • Do not carry heavy baggage with your fistula/graft arm • Do not wear tight clothing, watches or jewellery on your fistula/graft arm • Keep your arm clean • Wash your arm before all dialysis sessions • Make sure your nurse or technician checks your access before each treatment. • Keep your access clean at all times. • Use your access site only for dialysis. • Be careful not to bump or cut your access. • Don't sleep with your access arm under your head or body. • Don't lift heavy objects or put pressure on your access arm. • Check the pulse in your access every day			

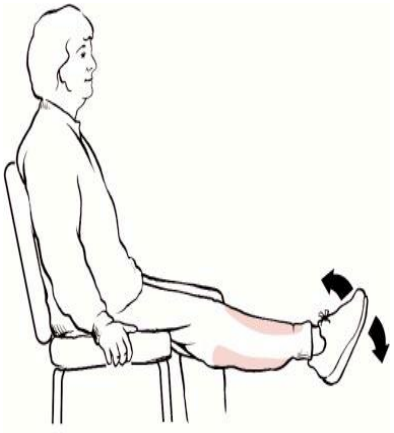
		Renal exercise This is important. Exercise and keeping fit improves your health and sense of wellbeing. You should do as much exercise as you feel comfortable with and our medical staff will be happy to advise you on this. Generally speaking, however, contact sports should be avoided if you have a fistula, shunt or neckline. Swimming may be permissible for people on peritoneal dialysis, but please ask for advice. Every person on haemodialysis can perform exercise. The need of exercise is to make your muscle stronger it also changes the fat and cholesterol content in blood. The most suitable place for ESRD patient to exercise is at home.The renal exercise are flexiblity exercise (gentle muscle stretching and slow movement)and strengthening exercise (resistance to make work harder).These exercise are performed daily for 30 minutes. **FLEXIBILITY EXERCISE** The illustrations give step-by-step instructions and show you where you should feel the stretch. Start with your head and neck and work down to your legs. Most of the exercises can be done from a			

		sitting or a standing position. When you can comfortably and easily hold each stretch for 10 to 20seconds and can do at least three repetitions of each. **1.Neck Stretch:** • Sit or stand up straight. Look straight ahead. • Slowly lower your right ear toward your right shoulder. • Bring your head back up and lower your left ear to your left shoulder. • Repeat with right ear to right shoulder. Drop your chin to your chest and slowly roll your chin across your chest until your left ear reaches your left shoulder. • Lift up your chin until you are looking straight ahead. (DO NOT TILT YOUR HEAD BACK.) 			

		2.Arm/Hand Stretch:  • Sit or stand up straight. • Stretch your arms straight out in front of you at shoulder height. • Stretch out all your fingers ,then make a fist and stretch out your fingers again repeat. • Keep your arms stretched out and slowly make small circles with your wrists. • First clockwise, then counterclockwise **3.Shoulder Shrug & Rotation:**  • Stand or sit up straight. • Shrug your shoulders up to your ears. Hold. Lower and repeat. • Make forward circles with your right shoulder. Then with your left. • Make backward circles with your right shoulder. Then with your left.			

		4,Chest & Upper Back Strength:  • Stand or sit up straight. • Put your hands on your shoulders with your elbows out to the side • Make circles with your elbows. First forward, then back. • Stop circling and touch your elbows together in front of your chest. • Open your elbows out again and squeeze your shoulder blades together. • Feel the stretch across your chest. Repeat.  **5.Slide Stretch:** • Stand or sit up straight. • Reach your arms over your head and stretch up toward the ceiling.			

		• Reach over your head and lean to your right side. Feel the stretch. • Come back up straight and reach over your head and lean left. Repeat. • Return to center and lower your arms. **6. Single Knee Pull:**  • Sit up straight. • Bend over, grab your left knee with both hands, and pull it toward your chest. • Tip your chin to your chest and try to touch your forehead to your knee. • Go as far as you comfortably can.Hold. • Lower your left knee and repeat the exercise with your right knee.			

		7. Leg Stretch:  • Sit up straight with your feet on the floor. • Grasp the seat of the chair for balance. • Slowly raise your right leg until it is straight out in front of you. • Point your toes, then bend your ankle and slowly bring your toes back toward you. Repeat. • Point again and slowly circle your ankle. First circle to the right a few times, then to the left. • Bend your knee and slowly lower your foot to the floor. • Do the same exercise with your other leg.			

		8.Calf Stretch: • Place your hands on the back of a chair for balance and stand up straight. • Step back with your right leg; press your right heel into the floor. • Bend your front leg slightly and feel the stretch in your right calf. • Bend your back knee slightly and feel the stretch in your right heel. Hold. • Relax and repeat on the other side.  **STRENGTHENING EXERCISES** The illustrations give step- by- step instructions and show you which muscle are working. Almost all these strengthening exercises can be done either with or without weight. Exercises 1 through 9 are basic exercises. Exercises 10 through 14 are intermediate.			

1. Arm Curl

- Stand or sit up straight in a chair.
- Keep your elbows close to your sides and bend your arms at the elbows.
- Turn your palms up and make a fist with each hand.
- Slowly lift one fist (with or without weight) up to your shoulder and lower .

2..Arm Extension

- Stand or sit up straight. Bend one arm at the elbow and bring your elbow up close to your ear. (Your hand will go
- behind your shoulder.)
- Keeping your bent elbow pointing out infront of you

		and close to your head, straighten your arm above your head. (Imagine you'rethrowing a baseball.) • Bend the elbow again and slowly lower your hand behind your shoulder. • Repeat with the opposite arm. • Use a stretch band or small weight to add resistance **3.Striaght leg Extension**  • Lean back in a chair with legs raised on a footrest. • Grasp the arms of the chair or the sides of the seat for balance. • Slowly lift your whole leg without bending the knee.(Ankle weights can be used.) • Count to five. • Slowly lower. Repeat with the opposite leg.			

		4.Abdominal Curl • Lie down on your back with your knees bent and your feet flat on the floor.  • Cross your hands on your chest and tuck your chin to your chest. • Slowly roll your head and shoulders up until your shoulder blades are off the floor. Do not do a full sit-up. Hold. • Slowly roll back down.			
10	The patient will be able to list out the ways to get encouragement	**Ways to get encouragement** Your social worker is there to help you and your family adjust to kidney disease. The role of the social worker is to keep open mind for solution. Your dietitian's role is to help you plan healthy enjoyable meals that follow your doctor's orders. You can	Explaining	Participating	Video clips

		learn a lot from other patients and they can learn a lot from you. The National Kidney Foundation is a large organization that helps kidney patient and their families to know more and live better. It provides pre dialysis education and helps to find jobs. Renal transplantation makes the renal patients to live like a normal human.			
11	The patient will be able to enlist the measures to adjust with employment	**Measures to adjust with employment** Everyone's work situation is different, but starting dialysis does not necessarily mean you have to stop work. Indeed, unless you have a particularly heavy job, we would almost certainly encourage you to continue. Most employers are understanding and helpful. Fatigue due to dialysis treatment usually affects a person's ability to work. Tips for job placement ▪ Removing employee's common myths ▪ Creating part time position ▪ Flexible scheduling of work ▪ Home dialysis	Explaining	Participating	Video clips